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LIGHT ⁘ HEAT ⁘ POWER ⁘ BYE-PRODUCTS

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A Retrospect of the World Power Conference.

MUCH space in our recent issues has been occupied by the presentation of some of the leading papers to the World Power Conference on Fuel, held in London a month ago. This conference was of such magnitude that it was difficult for a weekly journal even to touch on the leading features. We felt, however, that we had a responsibility to the industry in presenting a true picture of an event of such importance; and we therefore decided to arrange, if possible, for a series of exclusive articles on the World Fuel Conference from the point of view of the gas industry, written by the two men whom we considered were in the best position to contribute them.

We have achieved our intention; and next week's "JOURNAL" will contain the first of four articles by Dr. E. W. Smith, F.I.C., and Mr. T. Campbell Finlayson, M.Sc. These two gentlemen were closely associated with the technical side of the conference. Dr. Smith, as Joint Technical Secretary, had a very close connection with the organization of the technical sessions, and with the grouping and examination of the papers prior to presentation. Mr. Finlayson, as one of the General Reporters and Editors, also had the opportunity of making a specially detailed study of the technical contributions.

We have no hesitation in stating that these four articles will be an outstanding commentary on the conference as a whole; and we are glad of the fact that it is in the pages of the "JOURNAL" they will appear. In the words of the two writers, "the retrospect has a threefold object. First, to crystallize some of the information laid before the conference; secondly, to criticize and discuss certain features of the papers and discussions; and, thirdly, to indicate the lessons to the gas industry which it seems may justifiably be drawn."

In our choice of authors for these articles (which we are confident is one that will be generally acceptable to our readers), there is another notable feature—namely, that both writers are connected with one of our leading contracting firms. Gas undertakings owe an appreciable amount of their great progress during the past few years to the high level of the work carried out by technical men in the employ of the leading contracting firms, whether on carbonizing plant construction, auxiliary plant, or furnaces and appliances. No better example of this influence can be indicated than the work of the Research Section of the Woodall-Duckham Companies, under the leadership of Dr. Smith. This little group of specialists has played an outstanding part in the organization of various conferences held during the past two or three years. It is because we believe that Dr. Smith and Mr. Finlayson are in a peculiarly authoritative position to review the deliberations of the World Fuel Conference that we commend their series of articles to the special attention of our readers.

A Position Fast Becoming Intolerable.

THAT Mr. F. W. Goodenough, in the course of his speech (which we reproduce elsewhere) at the British Commercial Gas Association luncheon at York last Wednesday, should, in speaking of the Government's failure to meet the gas industry's claim for amending legislation, have adopted a somewhat more militant tone than that to which we are accustomed from leaders of the industry, will occasion no surprise to those familiar with the position—indeed, there are very many connected with the gas industry who would have been glad if he had been even more outspoken. As he truly said, the position is fast becoming intolerable.

One of the largest and most important of the industries of the country two years ago stated its case for the amendment of the antiquated legislation under which it has to work. That case has been examined by the Government Department charged with safeguarding the interests of the public which that industry exists to serve; it has been examined by several public bodies representative of all interests; and the net result of these investigations has been to show that the case is in the main unanswerable. Yet the Government have done nothing, and now say that, owing to the heavy demands on the parliamentary time available, they can do nothing. It is impossible for those connected with an industry which has served the public well for over a hundred years, and which now seeks no more than to be enabled more efficiently and more cheaply to continue and develop that service, to view the Government's attitude with equanimity. Expectation is giving place to indignation, and the Government stands in danger of losing the allegiance of some who have been life-long supporters of the party.

It is no part of the business of a technical publication to deal with political issues; but we consider that we are justified in pointing out that the gas industry is possessed of forces which up to the present it has never had occasion to use, and that it has a most admirable organization in its hands for the utilization of these forces. It is known that many million parliamentary voters in this country are gas consumers. If it can be shown to them—and it can be shown—that the rationalization of the gas industry, that the simplification and reduction of cost of the present antiquated procedure which would result from the acceptance of the industry's proposals, must eventually lead to a reduction in the cost of gas, they would share the indignation which is felt by those who are familiar with the facts. Governments which think in millions are

apt to ignore the value to individuals of a few shillings saved in the cost of one of the necessities of life; yet it is just such considerations which tend to sway masses of the electorate. Again, shareholders who have some £115,000,000 invested in gas company stocks, from which many of them receive a return considerably less than that which they might reasonably expect, can also be enlightened as to the effect upon them of the Government's failure to meet the industry's demands.

It is no doubt difficult to convey to the lay mind why it is that the Gas Regulation Act of 1920 has failed to achieve one of its avowed purposes—that of adapting the working of the sliding-scale principle to post-war economic and financial conditions—but the results of that failure expressed in pounds, shillings, and pence can be understood by anyone. Gas undertakings, through their collectors and inspectors, are in frequent and regular touch with their consumers, and company undertakings are in regular communication with their shareholders. It appears to us, and we know that our view is shared by very large numbers of those directly concerned, that the industry will have recourse to the forces at its command unless its requests are speedily acceded to.

Were the proposals of the industry anything but entirely and admittedly reasonable, were they of a revolutionary character, we should never make this suggestion. But no more is asked than that gas undertakings should be granted facilities for putting their house in order, freed from the obsolete legislative restrictions of a bygone age. They want to do on their own initiative what the electricity supply industry was forced by Parliament to do. They want to do what the coal industry has been urged to do, and has been given legislative facilities for doing. They ask for no grant of public funds.

The measure necessary to give effect to the most important of the proposals put forward would be short, and in the main it would not be contentious. What then is the obstacle? A Government who have devoted much time to the Rabbits Bill, and other measures of secondary importance, cannot seriously be heard to say that they have no time to attend to the requirements of one of the country's basic industries. We cannot but feel that Mr. Goodenough was right when he suggested that the reason for the Government's *non possumus* attitude lies in the fact that in the past the industry has been too peaceable and too unobtrusive. It is felt in Government circles that our claims can be ignored without running the risk of unpleasant consequences. It should be remembered, however, that even the most peaceable and the most unobtrusive may be driven to divest themselves of these attributes if they are forced into a struggle to secure their vital interests.

Concrete Roads—An Opportunity for the Industry?

In this and the preceding three issues of the "Journal," Mr. R. W. Edwards, Chairman and Managing Director of the Aldershot Gas, Water, and District Lighting Company, has in a series of striking articles developed for the benefit of the gas industry as a whole his argument that the time is approaching when the whole question of the laying of mains and cables in highways should be thoroughly investigated, and remedial legislation, to cope with modern developments, pressed for; further, that an opportunity is arising for the matter to be settled favourably for the public utility industries. The modern developments to which Mr. Edwards refers are, of course, the colossal growth of mechanical road transport and the consequent tendency to rely more and more upon ferro-concrete in highway construction; while the present law, as far as the subsoil works of utility undertakings are concerned, may be said to be embodied in the "Maybury Clause"—a menacing embodiment in that it in no wise attempts to cope with the particular evil of the ferro-concrete road surface, but leaves the public utility undertakers open to grievous expense in certain conditions. Before briefly indicating the opportunity which Mr. Edwards urges the industry to grasp, we would endorse one of his closing remarks—to the effect that there are bound to be at least two opinions regarding the situation and the best means of dealing with it, but that public service remains the ideal before all those concerned. Truly, it seems to us that here again is a phase of public utility work which calls for co-operation. In 1928, it is no good maintaining that roads must be constructed to suit mains and cables rather than a colossal volume of heavy, fast-moving traffic; it is likewise foolish to imagine that the privileges of public utility undertakers can be set at naught, together with the inestimable benefits which they bestow. But surely, in this enlightened age, men can get together and compose their outstanding difficulties and differences.

Now earlier this year Lord Montagu of Beaulieu introduced in the House of Lords a Roads Protection Bill, which had not the official backing of the Government and in consequence did not receive a second reading. The draft of the Bill was stigmatized in our columns as crude; and Mr. Edwards points out that its provisions were, indeed, so conceived as to give the maximum offence to both Public Utility Undertakers and Highway Authorities. Nevertheless, it appears likely that the Bill in an amended form approved by the Government will come forward in due course; and that will constitute, in Mr. Edwards' opinion, the golden opportunity for the gas industry to press and ventilate its claims at a time when they are likely to receive full consideration. In any case, there seems at the moment to be no alternative chance of solving a grave problem; and Lord Montagu is unabated in his desire to see his cause flourish.

The object of Lord Montagu's Bill was "to limit the powers of statutory undertakers to break open the streets;" and this bold statement is calculated not only to give offence but to hide much virtue which can be discovered by a consideration of the suggested provisions as a whole. We do not propose here to comment in any detail upon those provisions—they are set out and subjected to critical examination in the article in later columns of this issue. Suffice it to say that the virtue lies in the proposal that in the reconstruction of an old road or the making of a new one, there should be provision for the accommodation, where possible, of mains and apparatus in footways or grass verges; further, that the Highway Authority, where the Minister of Transport considers it to be "reasonably necessary," must make provision at their own expense for the removal of existing mains and apparatus and their replacement elsewhere. Such is the tempting morsel served up by Lord Montagu with a generally unpalatable dish; but Mr. Edwards considers that the Bill was a very interesting attempt at the solution of a problem which entails expense and inconvenience all round—to an extent which many Public Utility Undertakers do not realize, and which is certain to increase in gravity with the precipitate advance of civilization. The final article in to-day's columns points out that there is a growing movement towards regarding grass verges as the proper place for subsoil works; that public opinion has been educated to a much more kindly disposition to Public Utility Undertakers; and that undoubtedly the law as it stands is loaded for the Highway Authorities. On the contrary, it is submitted that the Roads Protection Bill not only puts forward a sound basis for the solution of a very difficult, pressing, and far-reaching problem, but it also proposes to solve very much in favour of the Public Utility Undertakers an important question arising out of that problem.

Let the defects be removed, if possible by collaboration between the promoter of a Roads Bill (we purposely omit the word "protection," for the latter is needed by all concerned), the Minister of Transport, and the Conjoint Conference of Public Utility Associations; and we are confident that the gas industry would fall in line. In any case, it owes gratitude to Mr. Edwards for his public spiritedness in having so clearly set forth an engrossing problem.

York—And After.

We spoke in advance of the York Conference of the British Commercial Gas Association as likely to prove yet one more of "these always successful, interesting, and inspiring gatherings." That our anticipation was well—indeed, abundantly—justified by the event was the freely expressed opinion of those fortunate enough to be there. Year by year these gatherings of chairmen of boards of committees—"conveners" when they come from North of the Tweed, as many of them do—of directors, councillors, managers, secretaries, salesmen, all keenly interested in the commercial development and maintenance of the industry, find the atmosphere of progressive public service, and mutual co-operation in that service, which pervades these meetings, more and more helpful, stimulating, and inspiring.

On Tuesday members listened to the splendid address of the President (Mr. Alfred Procter), which set the work of the Association (that is, of the industry) on so lofty, yet withal so practical, a plane, and were charmed, but we hope also stimulated greatly to action, by the paper of Sir Lawrence Weaver that was so apt and worthy a pendant to the Presidential Address. Then, after wandering among the historic beauties of York, they listened to the fervent but practical idealism of Mr. Ernest Hunt, who must have been well repaid by the wonderful ovation he received at the end of his address. And as members assembled on Tuesday evening for the banquet with which the York Gas Company completed a day that had been one continual feast for the mind, there were heard on every hand expressions of deep satisfaction. These could be summed up in the words of one member: "I wouldn't "have missed this day for anything."

That is, indeed, typical of the comments we hear in growing measure every year as these annual conferences of the "B.C.G.A." come more and more to form a vital part of the gas industry as an organized entity. They are the only gatherings at which the administrators, managers, and officers of gas undertakings of all descriptions—company and municipal, large, medium, and small—in all parts of the kingdom, from Aberdeen to Truro, get together to listen in public assembly to addresses and discussions of high quality, and to exchange in private foregatherings opinions and experiences to their great mutual interest and advantage. We have heard chairmen in particular bless these conferences for having given them an entirely new conception of the gas industry as a public service, and for having made them realize themselves and their undertakings to be part of a national whole, instead of isolated parochial units.

We believe that when, seventeen years ago this month, the "B.C.G.A." was founded at the now historic conference at Storey's Gate, Westminster, those responsible for its origin began a greater work for the industry itself, and for the commerce of the country as a whole, than any but a very few had any thought of then—greater indeed than any one of them freely imagined even in his most far-seeing moments. York (the crown of the year of work it splendidly closed) is only one more stone, though a finely wrought and worthy stone, added to the edifice of Efficient Service which is steadily rising from the foundation laid in 1911, to form a strong barrier against increasing competition from all sides.

We shall all now look forward with the keenest expectation to another year of effective work, and another conference of strengthening inspiration, under the guidance of the new President, Mr. Frank Jones, whom everyone welcomes with enthusiasm in his new office. Nothing could be more eloquent of the modern spirit in the industry than his acceptance of the presidential chair of the "B.C.G.A." and the words in which he, a gas engineer born and bred, replied to his election. He said he had been brought up to think the walls of the works were the boundaries of the industry; but he had realized that what was done outside those walls was as important as, or more important than, what was done within. The man who has grown in knowledge through experience and observation, and tells you so, is the man destined to teach and to lead. Mr. Frank Jones has taken his place in the very front rank of the most progressive men in the gas industry. We heartily welcome him there, and congratulate the "B.C.G.A." on providing the opportunity and persuading the man to take it.

Scurfing Times and Thermal Output.

In his Presidential Address to the London and Southern District Junior Gas Association, Mr. W. T. Kenshole, of the Lea Bridge District Gas Company, referred to an interesting experiment relative to the scurfing of vertical retorts which was carried out at Lea Bridge. It consisted of reducing the number of working days between scurfing from about 45, which is the usual, to 30 days. The immediate effect of this, he said, was that the retorts could be scurfed in 48 hours under the new conditions, as against about 72 hours previously. This, of course, is to be expected. Further and more important advantages were found in that the output of the house was increased by approximately 12 p.ct. with the same thermal yield per ton, but without any increase in the fuel used in the producers.

The Little Cloud?

Some weeks ago in these columns we permitted ourselves to picture our much respected contemporary "The Times" detachedly regarding the Gargantuan feast of sensationalism indulged in by the gamut of the Daily Press. In the same paragraph we acknowledged with delight the gesture of recognition accorded the gas industry in a leading article in that always reliable chronicle. Now half a column or so of the centre page of "The Times" is regularly devoted to "Political Notes," which are obviously contributed by one who constantly moves behind the scenes of Parliamentary activity and intrigue, and who must be kept extremely well posted by agents and organizations as to the way the political wind is blowing. Let us, then, take it as a portent of good that on Monday of this week the last paragraph of the said notes should have been devoted to the matter which is stirring the gas industry to its depths and sending out eddies into many neighbouring, and normally static, pools. Though the announcement varies little from others which have been published, nevertheless the source encourages us to hand it on to our readers.

> There is said to be a strong feeling among leading men in the gas industry that the Government should introduce, at an early date, a small Bill to amend some of the existing legislation which, it is alleged, hampers the development of the industry. It is understood that the authorities at the Board of Trade are sympathetic to the scheme, but it is doubtful whether Parliamentary time can be found for such a measure this session. It is stated, however, that the Bill would be entirely non-controversial, and would consist of four or five clauses only.

No bigger than a man's hand, maybe; but we would fain look upon the little cloud as a good omen in the parched land.

The "Gas Salesman."

There are many interesting features in the "Gas Salesman" which forms a Supplement to our issue to-day. In addition to our standard dish—an extended account of the proceedings at the meetings of the various Gas Salesmen's Circles—we publish a suggestive article by Mr. E. W. L. Nicol, who is the Expert to the London Coke Committee, on "The Merits of Gas Coke." Then Mr. A. V. Bishop, whose contributions on practical sales problems are well known to our readers, discusses this week some of the difficulties which confront salesmen when they have under consideration the lighting of large halls and churches. As usual, showroom and exhibition activities of several gas undertakings find their place in profusely illustrated articles; and finally we call attention to the many highly entertaining excerpts from the annual conference of the British Commercial Gas Association which was held last week in York, and to the inspiring address of Mr. Ernest Hunt at that conference.

PERSONAL.

We heartily congratulate Mr. A. P. F. Hayman, the Manager of the Antwerp Undertaking of the Imperial Continental Gas Association, on being honoured by the King of the Belgians with the conferment of the Order of Chevalier de l'Ordre de Léopold. Mr. Hayman, who is very well known to the gas industry of this country, accompanied the deputation of Belgian journalists on their recent visit here.

Among the recently-appointed Justices of the Peace for the County of London is Dr. Charles C. Carpenter, the President of the South Metropolitan Gas Company.

Mr. S. H. Packer, the Sales Manager to the Bradford Corporation Gas Department who on Oct. 26 was elected President of the Yorkshire Junior Gas Association, was the first Chairman of the West Riding of Yorkshire Gas Salesmen's Circle, and is at present the Chairman of the Bradford Publicity Club. Mr. H. E. Wilde, of the Bradford Gas Department showrooms, is the Hon. Treasurer of the Yorkshire Junior Gas Association, the Hon. Secretary of the West Riding of Yorkshire Salesmen's Circle, and the Hon. Secretary of the Bradford Publicity Club.

Among recently elected members of the Society of Chemical Industry is Mr. Rupert H. Saunders, gas engineer, of Windsor Road, Slough.

FORTHCOMING ENGAGEMENTS.

Nov. 2.—Gas Companies' Protection Association.—Annual general meeting at the Caxton Hall, Westminster, at 3 o'clock.

Nov. 3.—Midland Junior Gas Association.—Visit to the Shrewsbury Gas-Works.

Nov. 3.—Scottish Junior Gas Association (Eastern District).—Joint meeting with Western District at Edinburgh. Address by Mr. Russell G. Thin, B.Sc.

Nov. 6.—Society of British Gas Industries.—Council meeting.

Nov. 7.—Southern Association of Gas Engineers and Managers (Eastern District).—Meeting at No. 28, Grosvenor Gardens, Westminster, S.W. 1, at 2.30 p.m.

Nov. 7.—Manchester and District Junior Gas Association.—Visit to the Anglo-American Oil Company's Works at Trafford Park. Paper by Mr. C. Singleton and Mr. J. E. Stanier, of Stockport, on "Some Aspects of Ammonia Recovery from Steamed Vertical Retorts."

Nov. 10.—London and Southern District Junior Gas Association.—Visit to the Vauxhall Works of the South Metropolitan Gas Company.

Nov. 10.—Wales and Monmouthshire Junior Gas Association. Meeting at Cardiff, and probable visit to Dowlais Works. Paper by Mr. J. Hislop.

Nov. 14.—Southern Association of Gas Engineers and Managers.—General meeting at the Hotel Cecil, Strand, W.C. 2, at 2.15 p.m.

Nov. 15.—Midland Junior Gas Association.—Meeting in the Council House, Birmingham. Paper by Mr. F. C. Sylvester on "Internal Producers."

Nov. 17.—Scottish Junior Gas Association (Western District).—Visit to the Stonebyres Hydro Station of the Clyde Valley Electrical Power Company.

Nov. 17.—Yorkshire Junior Gas Association.—Meeting in Bradford. Presidential address of Mr. S. H. Packer, and inspection of the Birkshall Works of the Bradford Gas Department.

Nov. 21.—British Commercial Gas Association.—Executive Committee meeting, 12 noon; General Committee meeting, 2.30 p.m.

Nov. 22.—Society of British Gas Industries.—Autumn general meeting. Hotel Cecil.

Nov. 30.—London and Southern District Junior Gas Association.—Meeting at the Westminster Technical Institute, 7.30 p.m. Paper by Mr. A. T. Green, F.Inst.P., A.M.I.Chem.E.

The Institution of Gas Engineers.

Nov. 12.—Finance Committee, 10.30 a.m.; Benevolent Fund Committee, 11.0 a.m.; Executive Committee, 11.30 a.m.

Nov. 12.—Council meeting, 2.30 p.m.; Corrosion of Pipes Committee, 4.30 p.m.

Nov. 13.—Board of Examiners, 11 a.m.; Gas Education Executive Committee, 4 p.m.

Ferro-Concrete Gas Purifiers.—In our last issue we published an extract from an article by Mr. P. N. Roy on this subject. The sole concessionaires in Great Britain of Dr. Dey's system of ferro-concrete purifiers are the Economic Structures Company, 94-96A, High Street, Kensington.

FEATURES OF THE "B.C.G.A." CONFERENCE.

Making History.

Though every stone of York may be a reminder of the past, the noble city has not ceased to make history, and last week it added yet another page to its long record of good deeds by the affectionate welcome and bountiful hospitality extended to the British Commercial Gas Association, the members of which are serving their country as truly and as well as any knights of old. To all who took part in this welcome—headed by the President (Mr. Alfred Procter), the Lord Mayor (Alderman A. R. Fox), and Mr. Harold E. Bloor (the Gas Company's Engineer, Secretary, and Manager)—the fullest measure of thanks of the gas industry is due. On all hands it was acknowledged to have been a useful and happy gathering; and in the apportionment of credit for its success no small amount was awarded to the officials of the "B.C.G.A.," whose excellent organizing capacity was in evidence all through.

"A Clean Sweep?"

And so, filled with conviction that the gas industry is able still further to increase its contribution to the welfare of the community, the delegates and visitors left York in good spirits to return to their several duties—only to learn that Col. Ashley, Minister of Transport, had been emphasizing the desirability of extending the use of electricity in this country. If the scheme of the Central Board is to be successful, an extended use of electricity will be not only "desirable," but necessary. That, having gone so far, the Government should continue to "boost" electricity is only remarkable for the contrast which this "boosting" affords to the treatment meted out to the gas industry. Such a position of affairs as now exists cries aloud for remedy. There is, however, another aspect of Col. Ashley's speech which is of equal importance—that is, his disappointment that in so many of the new houses being built electricity was used for lighting only, and houses were not wired for the use of vacuum cleaners, cooking, irons, and other apparatus "which ought to be used." If electricity is making disappointing progress in the directions enumerated, it must be largely on account of the superior proposition which the gas industry is able to put forward. This adds vastly to the weight of the claim of the gas industry upon the Government for consideration. From the things which gas can apparently do better, we except, of course, the electrically operated vacuum cleaner. When this is universally installed, is it unreasonable to imagine that it may make "a clean sweep?"

Ancient and Modern.

If York is proud of its history and traditions, Eastbourne is no less proud of its reputation as a modern watering place. Each is typical of its period; and it is a striking fact that gas is equally in place in both. We have just seen how perfectly the atmosphere of York can combine with the aims and aspirations of the gas industry; and consideration of the policy and performance of the same industry will prove no less fitting at Eastbourne, where next year's conference of the British Commercial Gas Association is to be held. The Association are, in fact, to be heartily congratulated upon the place of next meeting and upon their new President, Mr. Frank H. Jones, who is in the van of gas administrators of to-day, and who has also had the widest of engineering experience. It did not need Mr. Jones's confession of his recognition of the importance of the distribution side of the industry to assure the members of the Association that their interests will be safe in his hands.

Gathered at the Dinner Table.

At the dinner given by the York Gas Company there was a big party to entertain—over 300—but the resources proving fully equal to the occasion, and the speeches being to the point, a thoroughly happy evening was spent. Sir J. A. R. Marriott, who represents the City of York in Parliament, was obviously impressed by the work of the gas industry, and there

was much reason, if little hope, in Sir David Milne-Watson's remark that he trusted Sir J. Marriott might be able to make his fellow Members of Parliament and the Government feel that the gas industry has something which it wants done for it. This "something" is merely justice, and so is the industry's right—freedom equally with other industries to carry on its business in the most efficient manner. An interesting item of the industry's right, we have said—yet the securing of it appears to be a task to make that of Sisyphus pale into insignificance.

The Institution Charter.

At a later stage in the after-dinner speeches, Mr. John Terrace, as President of The Institution of Gas Engineers, was able to afford the gratifying information that it is not likely to be long now before the Charter becomes an accomplished fact. Mr. Terrace does not speak lightly; and we feel sure that he had the best of reasons last week for the faith that was in him. Thus the Institution may be regarded as on the threshold of a new era of even greater usefulness.

Joint Conference at the British Industries Fair.

Another matter to which Mr. Terrace drew attention was the projected gas conference in Birmingham next February, in connection with the British Industries Fair. Here will be a chance which must not be neglected for members of The Institution of Gas Engineers, the National Gas Council, the British Commercial Gas Association, and the Society of British Gas Industries to meet together. Let us determine to make the occasion fully worthy of a "live" industry such as ours.

France Follows Suit.

A particularly pleasing note was struck, during the responses at the dinner to the toast of "The Visitors," by M. P. Mougin, the Secretary of the Union Syndicale de l'Industrie du Gaz en France, who brought cordial greetings from our colleagues on the other side of the Channel. He furnished the best possible proof of the great interest that is taken in France in the work of the "B.C.G.A.," by announcing that a similar organization is now being built up in that country. M. Mougin reminded his hearers that at Lille a year ago Mr. John Terrace had urged them to adopt this course; and then with the generosity which is characteristic of France, he added: "We have followed his advice." Intimate knowledge of the work and results of the "B.C.G.A." gives perfect confidence that France will find no reason to regret having followed suit.

Showrooms—Permanent and Otherwise.

One of the surprises of the conference was the small amount of discussion that took place upon the paper contributed by Mr. H. E. Bloor, upon the question of showrooms. It is true that he dealt very fully with his subjects, but there were points in his paper upon which discussion might have been anticipated. However, upon the main point of the desirability of showrooms there can at this time of day be little room left for argument; while the method of carrying into effect the policy must always be governed by local conditions. Generalizations are seldom of great use; they never can be so in the case of a gas showroom, except in so far as the more elemental details are concerned. What is justifiable in one place would not be so in another; what was essential even for one locality, might be altogether superfluous in another. This applies to almost every detail, as well as to the completed scheme. What would fill the barest requirements of one class of consumer would appear stark luxury to another. And so on. These must be matters of judgment with only one safe rule for guidance: That it is far better to over-spend on publicity than to incur the much greater loss that will inevitably result from under-spending. One might even doubt whether, within reason, it is possible to over-spend.

The Example of Kensington.

Mention was made in the paper of the fact that there was no need for extravagant furnishing or decoration of showrooms; but, as Mr. Bloor explained, what he really desired was to advocate a number of branch showrooms, rather than spending the available money on one or two. Once more it is a question of the circumstances governing the case. To regard, for instance, the Kensington Showrooms of the Gas Light and Coke Company as extravagant would be to admit inability to appreciate the facts. Removed (say) to Bethnal Green, a charge of extravagance might fairly be lodged against them. They are, however, in the very heart of the world of fashion; and they serve the Company's purpose as no other type of premises could do. There is, moreover, a wider aspect of the matter—an aspect which reveals a great debt of gratitude as being due from the gas industry generally to the Gas Light and Coke Company. Many who read these lines will recall the time when it was claimed that, for lighting, electricity—dearer even then in many cases than it is now—possessed great advantages over gas from a decorative point of view. We used to be told that gas fires could by no means be induced to harmonize with their surroundings. We hear little of that sort of thing now. Why? The Kensington Showrooms and numberless other demonstrations made by the Gas Light and Coke Company, both alone and in conjunction with other up-to-date undertakings, largely supply the answer. When gas is at its best, even electricity would blush to claim superiority from the decorative or any other point of view.

Cheap Gas the Only Way.

The discussion was marked by a sturdy profession of faith on the part of Mr. Ralph Halkett. Here again, it is a question mainly of local circumstances; and situated as he is, it is hardly to be doubted that his faith is justified. His belief is that, for an industrial district like Sheffield, situated in the heart of the coke oven industry, to take coke oven gas is the right thing. As he said, the coke oven gas is there, and it is the gas industry who should handle it. His Company are at present taking 5½ million c.ft. of coke oven gas daily; and in twelve months' time they will be taking over 12 million c.ft. a day. He is convinced that the use of such gas by the gas industry will extend; and we are in agreement with him.

The Travelling Showroom.

A centre of attraction in the Market Place of York was the Gas Company's travelling showroom. Bringing the showroom to the door of the consumer—and such a complete and up-to-date little showroom—is a feat upon which Mr. Bloor deserves hearty congratulation. As he emphasized in the discussion, the travelling showroom is not for a moment intended to be a substitute for the permanent showroom. It must be in addition to adequate accommodation in suitable places; and as such it undoubtedly possesses great possibilities. The number of burners, mantles, &c., sold, and the definite services rendered, are no sufficient indication of its usefulness. How many children, on the contrary, will get from it their first impressions of the gas industry—those first impressions which remain so long after later impressions have faded away! We venture to prophesy that as time goes on there will be many more travelling gas showrooms, and that they will accomplish propaganda work far exceeding anything which could be included in a balance-sheet in the shape of pounds, shillings, and pence.

The Unseen Servant.

A reason for intensified publicity was pointed out during the conference by Mr. Robert Watson, of Doncaster; and it is a reason which is not perhaps generally realized. We are frequently urging in these pages the unrivalled quality of street-lighting by gas; and inseparable from it is its advertising value, which is great. This means that any loss of public gas lighting calls for proportionate additional advertising in some other direction, so as to make good the loss of publicity. Mr. Watson told the members that they must constantly bear in mind the necessity of keeping themselves before the public as a progressive and modern industry. There could be no question that gas was being more and more used in places unseen by the man in the street, though public gas lighting was still to be found in many places where it caught the public eye. In illustration of his meaning, he said that, on a recent visit to the United States, from the time of landing to the moment of leaving he found no evidence of gas, except what was provided by the holders in various parts of the country. Yet the consumption of gas in New York has increased 34 p.ct. in the last five years, and is to-day, Mr. Bloor pointed out, half as much again per head as in old York, and about 20 p.ct. more per head than in London. Stronger steps must be taken to inform the public of the unseen servant.

Bring Forth the Eighteenpence.

Yet, in a conference teeming with reasons for increased publicity, which inevitably involves increased cost, Mr. F. W. Goodenough, as Executive Chairman, could do no more than announce that there had been a substantial response to the appeal for a voluntary increase in subscription from 6s. to 7s. 6d. per million c.ft., to be spent on newspaper publicity. The Committee have reason to believe they will get a much greater response; they should have no reason in the world to doubt that the response will be universal. Let there be no hesitation in the matter. One of the greatest secrets of advertising is to time it properly. Perhaps in the not far distant future it will be impossible, even by a voluntary increase in subscription from 6s. to 16s. per million c.ft., to make good the loss that will result from refusal now to increase the rate from 6s. to 7s. 6d.

An Intolerable Position.

A memorable meeting was brought to a close by a weighty speech, in which Mr. Goodenough voiced thoughts that have often passed through our mind, though we have not so far put them into black and white. It is time now, however, that the matter should be seen in its true light; and we invite the attention of all whom it may concern to the following presentation of the case by Mr. Goodenough: "In my opinion, and in that of many others, the delay is fast becoming intolerable, and it is for that reason that we must marshal our forces and make it clear that our power is very far from being negligible. We are a highly organized industry; we are in close and regular touch with our consumers, shareholders, and workers, and we can show to each that their interests are being jeopardized. Some £113,000,000 of capital invested in companies alone, mostly in small shareholdings, means a considerable army of shareholders; and there are over 9,000,000 separate gas installations which represent at a conservative estimate some 40,000,000 persons who have the benefit of a supply of gas; and to these fall to be added 115,000 workers directly employed in the making and distribution of gas. In the past, we have evidently been too unobtrusive and too peaceable. The time has now come to rid ourselves of those attributes temporarily and not to resume them till justice has been done."

THE GAS INDUSTRY AND HIGHWAY PROBLEMS.

By R. W. Edwards, Chairman and Managing Director of the Aldershot Gas, Water, and District Lighting Company.

III.—THE ROADS PROTECTION BILL.

In the most recent report of the Conjoint Conference of Public Utility Associations we read that "Following upon a debate with regard to the right of Public Utility Undertakers to dig up public roads which was initiated by Lord Montagu of Beaulieu in the House of Lords, and which gave rise to much adverse criticism of the operations of Public Utility Undertakers, Lord Montagu introduced a Bill entitled the 'Roads Protection Bill,' the object of which was to limit the rights of statutory undertakers to break open the streets. The Bill was, however, so divorced from reality that it was not deemed necessary to take any action with regard to it; and as a fact, time did not permit of a Second Reading being accorded to the same." It is not without a due sense of my temerity in so doing that I venture to say that while, of course, each item in the above extract is of irreproachable veracity, yet the impression which the whole is calculated to give is false. Before I can adduce the evidence which bears out this somewhat audacious statement, however, it will be necessary to review, in brief, the provisions of the Bill so sweepingly denounced.

The object of the Roads Protection Bill is, avowedly, "to restrict the breaking-up of roads for the purpose of laying down and repairing pipes, wires, and apparatus." This it proposes to do through the medium of the following provisions: Clause 1 enacts that a certificate granted by the Highway Authority and confirmed by the Ministry of Transport should be required before new mains are placed in the carriageway of protected roads; Clause 2 makes provision for the hearing of objections to the granting of such certificates; while Clause 3 provides that the Ministry of Transport may make rules regulating the application for such certificates, and that the Highway Authority may impose conditions in granting them. Clause 4 is to the effect that in making or reconstructing roads the Highway Authority shall as far as possible make provision for the laying by undertakers of mains and apparatus under such parts of the road as are not intended to be used as a carriageway, and such provision may include culverts to be used exclusively for the laying therein of such mains and apparatus; while Clause 5 enacts that the Highway Authority shall make subways for mains and apparatus at road crossings. Clause 6 lays down: 1.—That when the Highway Authority closes a road for reconstruction purposes it shall give three months' notice to every undertaker owning mains or apparatus in or under that part of the road which is to be broken up, and unless the Ministry of Transport order the removal of the apparatus (as provided in Clause 7) the Authority shall facilitate all work in connection with the apparatus, and may require the placing of valves and stop-cocks on all branch and service connections. 2.—That the road must not after such reconstruction be broken up again by the undertakers for three years without the consent of the Highway Authority. 3.—That the Authority may impose conditions in giving such consent. 4.—That nothing in the clause is to prevent such undertakers from breaking up the surface of the road in the event of an unforeseen emergency requiring immediate remedy. Clause 7 provides that (1) where the existence of mains and apparatus in a protected road is likely to cause obstruction, the Minister of Transport may make an Order requiring the undertakers to remove the mains and apparatus and replace them elsewhere in the carriageway or under the footways of the road or in or on lands adjoining the road, doing as little damage as may be, and paying compensation in the last case; (2) the cost of such removal or re-laying is to be borne by the Highway Authorities; (3) the Highway Authority shall not be authorized or required to make way-leave payments to owners of lands adjoining the road. Clause 8 is devoted to interpretation; and we may note (1) that a "protected road" is "a street or road the carriageway whereof is repairable by the inhabitants at large," and (2) that a "new main" does not include a main or apparatus provided for renewal or repair of existing mains or apparatus, or a branch or subsidiary connection from a main for the service of separate consumers. Clause 9 gives the short title.

To my mind the first point that strikes one in thus reviewing the provisions of the Bill is that they are so arranged as to give the maximum offence to both Public Utility Undertakers and Highway Authorities. Thus Clause 1, which, in conjunction with the two following clauses, would suffice to all appearances to damn the Bill once for all from the point of view of Public Utility Undertakers, nevertheless takes on a totally different aspect when read along with the remaining clauses of the Bill. Indeed, if the trappings and such like be "scrapped," we find that the essentials of the Bill are (1) that where a road is reconstructed or a new road built, provision is to be made, if at all possible, in the footways or grass verges for mains and apparatus of Public Utility Undertakers; (2) that once the surface of a new protected road is made up, it may only be broken up again in cases of emergency, but the Highway Authority must, if necessary, make provision *at their own expense* for the *removal of existing mains and apparatus* and their *replacement elsewhere* in the carriageway or under the footways or grass verges of the road; (3) that undertakers must obtain a certificate from the Highway Authority approved of by the Ministry of Transport before they can proceed to break up the carriageway of a road for the purpose of laying a new main therein.

Having now laid down the foundations, so to speak, of this article, I may revert to my criticism of the extract from the report of the Conjoint Conference quoted above. In the first place it might be thought that those who drew up the said report have permitted their attitude towards the Roads Protection Bill to be very strongly affected by a speech made by Lord Montagu in the House of Lords two months before he introduced the Bill. If this is so, it is not quite just to the Bill. So far as the Public Utilities are concerned, the Roads Protection Bill was undoubtedly born under an unlucky star, and the attitude of their representatives to date would appear to be merely an extension of the principle of "visiting the sins of the fathers upon the children." Again, while it is true that the object of the Bill is "to limit the powers of statutory undertakers to break open the streets," that is to put the said objective in the manner most calculated to be offensive to the said undertakings, and, further, it is to leave out a qualification which alters the whole aspect of the question—for the method by means of which the said *limitation* is to be *made feasible* is *by making provision* for *mains and apparatus* in the

footways and grass verges of roads. Finally, I do not agree with the report when it goes on to say that the Bill is "divorced from reality," for it seems to me that, so far from this being the case, the Bill is a very interesting attempt at the solution of the problem with which it purports to deal—namely, the expense and inconvenience to all concerned of breaking up carefully prepared roads. And in this connection, if I may say so, many Public Utility Undertakers do not appear to realize how great is this expense and inconvenience to them, when, as is becoming more and more frequently the case, roads are constructed, or reconstructed, in ferro-concrete.

Is that solution of the problem which is put forward in the Roads Protection Bill—namely, the laying of mains and apparatus out of the carriageway—possible of execution? I think that it undoubtedly is, and in this I have the opinions of Sir Henry Maybury and Mr. Ambrose Cross to bear me out. The latter, on June 1 of this year, read to members of the West Midland District of the Institution of Municipal and County Engineers a paper entitled "Roads: 1888-1928" in which he stated—

> "Before passing on to a consideration of surfacing and other materials of road construction, it may be permissible to interpolate a word or two about a cognate subject—viz., the admirable and far-reaching change which is taking place . . . *in the direction of making provision, elsewhere than under the carriageways* of *public* and *private roads* and streets, *for such services as gas, water, electricity*, sewers, and surface water drainage, &c., which change will remove what has hitherto been perhaps the greatest obstacle or deterrent to the adoption of concrete foundations for new or reconstructed roads of all classes. If the Ministry of Health would . . . standardize this new departure so as to obtain uniformity of practice as far as possible in all districts, it might well be worth while. Certainly it would . . . in time eliminate one of the chief worries of road surveyors."

Perhaps even more striking testimony to the practicability of this method of solution may be found in this extract from a passage in "The Times" of the 18th inst. with reference to the new Barnet by-pass road:

> "The new roads are 100 ft. in normal width, with a carriageway 30 ft. wide throughout. Opportunity has been taken to lay experimental sections of various types of cement concrete surfacing in order that judgment may be formed as to their durability and non-slip qualities. *Ample grass verges are provided*, and space is available for widening the carriageway if need require."

The dictum referred to on the part of Sir Henry Maybury is probably the most important and far-reaching of all, but it would appear to come in more suitably at a later period in this article.

We may thus take it that it will be possible for provision to be made for mains and apparatus out of the carriageway. The next point in Lord Montagu's Bill on which I would touch is that it provides that where the Minister of Transport considers it to be "reasonably necessary" that existing mains and cables should be shifted out of the carriageway, the costs of removal and replacement are to be borne by the Highway Authority. Such removal will always be, *ipso facto*, "reasonably necessary" in all cases where roads are constructed in, or reinforced with, ferro-concrete, both from the point of view of Public Utility Undertakers and from that of Highway Authorities. Thus Lord Montagu proposes without further cavil to concede to the Public Utility Undertakers a boon which takes practically all the bitterness out of certain inconveniences to them incorporated in the Bill—inconveniences which to my mind are absolutely necessitated both by the exigencies of the vastly increased traffic on the roads, and by the recent developments in the construction of roads. I feel that this point can hardly be too strongly emphasized. Thus the Roads Protection Bill not only puts forward a sound basis for the solution of a very difficult, pressing, and far-reaching problem, but it also proposes to solve very much in favour of the Public Utility Undertakers an important question arising out of that problem.

The defects of the Bill, on the other hand, are self-evident. The tone is such as would almost certainly give offence to both Public Utility Undertakers and Highway Authorities, and is mercilessly, but in the main justly, criticized in the "JOURNAL" of July 18 of this year. Further, the provision that mains and apparatus be removed and replaced on private property adjoining the road would certainly not pass without opposition; but in the great majority of cases in which such removal would be necessitated, this provision would not require to have effect. It is also quite a just point of view to adopt that it is better that the few should suffer inconvenience to some extent, rather than that the many should do so to a greater degree. What I am trying to demonstrate, however, is that these defects do not hinder the Bill from affording a basis for a solution of the highway problems which to-day face the gas industry.

How does the Bill compare with the existing law on the points in regard to which it proposes to legislate? The existing law makes no attempt to deal with problems raised by the most recent methods of road construction. In this respect the Roads Protection Bill is an unquestionable improvement, for it, as we have seen, incorporates a very sound and practicable method of solution. Further, the *existing law*, as we have seen, decides the vexed question of costs of removal, &c., *very much in favour of the Highway Authorities*, whereas the Bill under review proposes to settle that question *in favour* of the Public Utility Undertakers. Thus it can hardly be denied that a measure of the type of Lord Montagu's Bill would constitute an improvement on the "Maybury Clause," particularly from the point of view of Public Utility Undertakings.

You may say, All this is very fine, but is it not all in the air, considering that the Roads Protection Bill has been rejected? My answer is to refer you to the report of a quarterly meeting of the Hants County Council, given in the "Hants and Berks Gazette" on Aug. 4 this year, and couched in the following terms: "Lord Montagu said that about a month ago he introduced in the House of Lords the Roads Protection Bill. It had not been approved by the Government, but it might very likely come forward next session in a form which the Government might support. When one considered the cost of making-up a road was from 6s. to 10s. per super yard, the cost of disturbing the surface was a very serious matter." We are thus entitled to expect that the Roads Protection Bill will soon come forward again with, so to speak, the rough edges knocked off. One point more, before I go on to my final argument for supporting the Bill: There would appear to be no alternative attempt at solution of the highway problem likely to be put forward in the near future; and that Lord Montagu's interest in this problem has not abated is borne out by the reports of the recent activities of his Lordship.

As ferro-concrete surfaces are coming more and more into favour with the Highway Authorities, it follows that in the future it will be more and more arduous and costly for all concerned to break up roads in order to obtain access to gas mains and other public utility apparatus. It is natural that the most durable surface possible should be used in making-up roads, which surface is claimed by supporters to be the ferro-concrete, but as the law now stands this will lead to untold cost and inconvenience for gas undertakers. It is obvious that at the moment the importance of this problem is appreciated in Government circles, and that the need for remedial legislation is recognized. In this connection I might again refer to a speech made by Sir Henry Maybury in June of this year. Sir Henry Maybury dealt with the problems raised by modern methods of road construction and the exigencies of rapidly increasing traffic. He referred first to the suggestion that public utility services should pay rent for their occupation of the highways, and pointed out the defects and inequities involved. In his opinion, "the simplest and most practical solution of the problem is the provision in country areas of capacious margins on each side of the metalled carriageway, in which all mains and cables could be laid . . . in large centres of population the ideal to be aimed at would appear to be the provision of subway accommodation under the footways." Sir Henry proceeds:

> "Do not let us regard the provision of such subways or conduits as being impracticable because at a particular time we are only engaged in the improvement of a comparatively short street, but let us have imagination and make a commencement somewhere. It will be surprising how such a procedure will grow. Many of our improvements have developed from quite as small beginnings, and are now recognized as current practice. *The Minister of Transport will, I am sure, be sympathetic to any such scheme submitted to him, and will do his best* TO GIVE FINANCIAL ASSISTANCE *in the encouragement of what must eventually make for sound and far-sighted policy.*"

Three years ago Public Utility Undertakers were spoken of as "trespassers, intruders, and wayleavers." It is evident from the tone of the address just quoted from that public opinion is more in favour of the undertakers, and that if their claims are pressed now, they will receive full consideration. The Roads Protection Bill proposes to concede to us portions of very essential provisions. Fought out in the Committee Rooms, it will take on a practical aspect. To my mind it affords us a golden opportunity for pressing and ventilating our claims at the time when they are likely to receive full consideration. Let us, then, take advantage of this opportunity, for it may never present itself again; public opinion is a notoriously fickle jade, and the type of legislation which may be passed on the subject if we delay too long is only too clearly evidenced by the debate in the House of Lords on May 17 of this year, and by the alternative suggestion to that incorporated in Lord Montagu's Bill to which Sir Henry Maybury made reference. If we have the suggested benefits embodied in this Bill passed into law, what is a most serious problem can possibly be turned to our lasting advantage, for the use of ferro-concrete may obviate the necessity for breaking-up roads.

In conclusion, let me say that I am grateful to the Editor of the "JOURNAL" for his courtesy in giving space to these articles—a courtesy upon which I trust I have not trespassed unduly—and to those of you who have read them for your attention. I feel I have done a little to further a point I consider vital to our interests, and now look to someone worthier to carry on the torch. There is so much evidence as to the unity of the gas industry that notwithstanding the fact that there are bound to be at least two schools of thought, there can be no doubt but that we are all pulling to the goal of efficient public service.

"B.C.G.A." CONFERENCE AT YORK.

The conference room of the British Commercial Gas Association at its Annual Meeting would seem to be an increasingly popular rendezvous for the gas industry; and the reasons are not far to seek. In the first place, there is ever-widening realization and deeper conviction that without the functions of the Association the corporate body of the industry would be largely atrophied. Secondly, the meeting has become the one at which, more than at any other, representatives of all branches of our technology, together with Directors and Councillors, have an opportunity for the discussion of their joint problems. Finally, the venue is always so chosen, and the arrangements are so conceived, as to constitute one of the greatest attractions in the gas calendar. Thus the Seventeenth Annual General Meeting and Conference, held in York on Oct. 22, 23, and 24, under the Presidency of Mr. ALFRED PROCTER, Chairman of the York Gas Company, has added to our records another memorable event. Many of those who attended the Conference took with them to York the pleasantest recollections of the Gas Company's centenary celebrations in March, 1924, on which occasion there was also held a District Conference of the "B.C.G.A." That last week's meeting in no way fell short of the high expectations engendered by the previous visit was due to the great hospitality of the York Gas Company and to the energy of Mr. Harold E. Bloor, B.Sc., B.Eng. (Engineer, Secretary, and Manager of the Company), and his staff, and to the efforts of the officers of the Association. As for the new year of activity upon which the latter has set forth, we venture to say that its success is already assured under the Presidency of Mr. Frank Harding Jones, Chairman of the Wandsworth, Wimbledon, and Epsom Gas Company, and Vice-President of the South Metropolitan Gas Company. His suggestion that the next annual meeting should be held in Eastbourne, of the Gas Company of which he is Deputy Chairman, was universally approved.

A RECEPTION AND LECTURE.

The first function of the meeting took place on Monday evening in the Assembly Rooms, where a large company were entertained to a reception and dance by Mr. and Mrs. Alfred Procter. After receiving the guests, Mr. Procter proceeded to present, on behalf of the York Gas Company, to Councillor F. W. Chapman, Chairman of the York Education Committee, a handsome silver shield in connection with the annual gas cookery competition for schoolgirls conducted under the joint auspices of the Education Committee and the Gas Company.

Mr. PROCTER said the shield represented a movement inaugurated by the York Gas Company 13 years ago. It was an annual competition for girls of the local elementary schools, designed first of all to stimulate the practice of the science of domestic cookery—a most important object—and also to help to stimulate the use of gas in the city. The movement was carried on by Mr. H. E. Bloor, the Engineer, Secretary, and Manager to the Company, with the assistance and support of the Education Committee. Prizes were given every year; and the names of the prize-winning schools were, and would continue to be, inscribed on the discs on the shield.

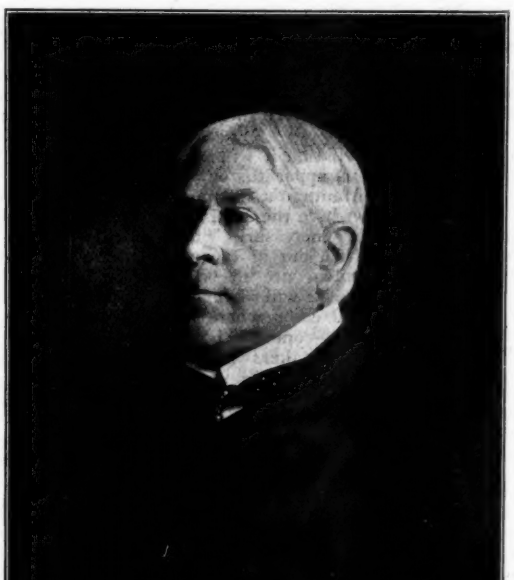
Councillor CHAPMAN, expressing the indebtedness of the Education Committee, remarked that the encouragement given by the York Gas Company was very highly appreciated by the Committee and their instructors, and undoubtedly even more so by the girls who secured the valuable prizes of useful books offered by the Company.

The PRESIDENT then introduced Sir William Arbuthnot Lane, and said the "B.C.G.A." were very glad to be associated with the New Health Society in the effort to provide the best and most efficient service for the public good and the public health. They were fortunate that evening in having Sir William to talk to them on the important subject of gas in relation to public health. He was widely known by his work in medical circles and by his being a founder and President of the New Health Society.

GAS AND THE HEALTH OF THE PEOPLE.

Sir WILLIAM ARBUTHNOT LANE, Bart, M.B., M.S.Lond., F.R.C.S., considered the application of gas under three main headings—domestic, industrial, and national; but he maintained that however much time he devoted to the question that evening, he would be able to describe only a fraction of the utilities for which gas is essential. The New Health Society had all along recognized that gas was a most useful element in the nation's health; and they were attempting to supplement the work the gas industry was already doing so well. In dealing with the domestic uses of gas, Sir William made many interesting remarks, among which was the point that the gas flame has the capacity of raising water quickly to the boil, which means that the water is in a perfect condition of aeration for tea-making. He referred to the growing use of town gas for incineration and sterilization in hospitals, and to the new field which has been found in refrigeration. The lecturer only touched briefly upon gas in industry; but he had much to say about the general national health standpoint. All our large towns are shrouded in an incessant cloud of smoke; and in proportion as this pall is dense, to that extent are the inhabitants ill-nourished, small, and more or less deformed. The clear air during the coal strike of 1926 showed how deeply the gas industry can assist in removing this evil.

Sir William considers that town gas supply is the greatest philanthropic industry in the country; and when philanthropy and finance run on parallel lines, they are sure to command success. The New Health Society feel that the gas industry is a great power of the future in public health and welfare; and it should be given a free hand by the Government.



ALFRED PROCTER.

Born in York in 1861, Mr. Procter was educated first at Holgate Seminary and afterwards at St. Peter's School. He chose the law as a profession and was admitted a Solicitor in 1882, when he commenced a practice which he has since carried on in the city. He was President of the Yorkshire Law Society in 1926. For fifteen years he was a member of the City Council. He is a member, and the Secretary, of the Ancient Guild of Merchant Adventurers of York, and Vice-Chairman of the Governors of the Bootham Park Registered Hospital. Mr. Procter holds numerous public appointments, being Coroner for the City of York and for the Thirsk, Escrick, and York Districts of Yorkshire, Clerk to the Justices of the Ouse and Derwent Division of East Yorkshire, Clerk to the Visiting Committee of the North Riding Mental Hospital, and Clerk to the Committee for the Care of the Mentally Defective for the North Riding of Yorkshire. In 1899 he was elected a Director of the York Gas Company, and has been Chairman of the Company since 1913. In Freemasonry he is a Past Grand Officer of England in the Craft, and in the Order of the Royal Arch, and in the Mark Degree, and is also Deputy Provincial Grand Master of Mark Masons of North and East Yorkshire.

OPENING OF THE BUSINESS PROCEEDINGS.

The business meetings were held in the Assembly Rooms, and a crowded attendance faced the PRESIDENT (Mr. Alfred Procter) at the opening of the proceedings on Tuesday morning.

WELCOME TO THE ANCIENT CITY.

The PRESIDENT: My first duty is to introduce the Lord Mayor of York. He has been good enough to come and say a word of welcome to this conference.

The LORD MAYOR (Alderman A. R. Fox): It is a very great pleasure indeed for me to be here this morning to welcome you to the City of York. I recognize you as gas administrators, and as representing one of the most important bodies that we have in this country. I know my own—I say "my own," because the York Gas Company is a great part of the City of York—Directors are men who are out for work, not accompanied by too much talk; and I am not going to hold myself any less a Yorkshireman than they by taking up a lot of your time this morning. I understand that last year the total number of gas consumers in this country was something between 8 and 9 millions; and when one considers that these consumers are mostly domestic consumers, who are dependent upon gas for cooking, lighting, and heating, one is bound to recognize what an important part in the welfare of this country the gas undertakings play. I believe in the olden days it would have been customary for you to go to one of the city walls, and we should have received you as delegates or as visitors to the city before you were allowed to enter. I presume on those occasions your credentials would have been very closely examined; and while I would not for one moment suggest that the credentials of any of the visiting members of this conference would bear any question, I can say one thing—that you would have been passed through for a totally different reason, and that is that your invitations have been issued by one of York's most respected citizens, Mr. Alfred Procter. I must congratulate you on the choice that you have made of President of your Association. I do so; and as the nominal head—the purely nominal head—of the sister lighting authority of this city, I wish to reciprocate most heartily the sentiments he expressed in this room last night, when he said that the York Gas Company were co-workers with the York Corporation in ministering to the essential services of the city, and that the York Gas Company were very glad of that co-operation. I want to say, as Lord Mayor, that no one appreciates this co-operation more than the York Corporation do themselves. I only hope that the relationship which we have always had with the York Gas Company—a relationship which has invariably been very happy—will continue. The Gas Company are anxious at all times to give us the very best of their service at a most reasonable price. We have always been satisfied to accept their price; and I trust that the relationship between the Corporation and the Company may long continue. There is no doubt about it that at the present time we cannot get too much light on the problems that face us; and we cannot get too much warmth (shall I say?) as between master and man and nation and nation, and in all social matters. Therefore, very briefly, I bid you welcome in the name of the inhabitants of this old city. I sincerely trust that the result of your deliberations may be more light and greater prosperity to the York Gas Company, and that the delegates may go away feeling in some degree the warmth of the welcome which is given them by the citizens of York. I thank you very much for allowing me to be here this morning, and to express, not only our welcome to the city, but our appreciation of the York Gas Company's services.

The PRESIDENT: I am sure you will all join with me in according the best thanks of the conference to the Lord Mayor for his kindness in extending so hearty a welcome to our old city. We all understand how great are the demands upon the time of the Lord Mayor, and we fully appreciate his presence. He has just come to the end of a year of conspicuous success in the discharge of his duties. He has upheld the dignity and traditions of his great office; and we shall part with him with much regret. I thank him specially in the name of my colleagues on the Board of the Gas Company for the cordial way in which he has reciprocated those sentiments which I tried to express last evening.

GREETINGS FROM AMERICA.

Mr. F. W. GOODENOUGH (Executive Chairman): I will ask you to approve of the appointment of Mr. J. R. H. Jacobs, of Southampton, and Mr. S. E. Halliwell, of Bristol, as Scrutineers for the examination of the ballot-papers relating to the election of the next President and the appointment of Auditors. A fortnight ago, when the annual conference of the American Gas Association was opening, a cable was sent from this Association to them wishing them every success in their meeting. The following cable has now been received from Mr. Oscar H. Fogg, President, and Mr. Alexander Forward, Managing Director: "Heartiest greetings to the British Commercial Gas Association at their seventeenth annual meeting. May the meeting be successful, and the future of the British gas industry be prosperous." We shall send them our thanks in due course.

PRESIDENTIAL ADDRESS.

The President then proceeded to deliver his address, which will be found on pp. 251-56 of last week's "JOURNAL." At its conclusion,

Mr. J. E. DAW (Chairman of the Exeter Gas Company) said: It has been a privilege granted to me to ask you to join with me in thanking the President for his excellent address, which must have taken much labour and thought to compile, and which he has delivered in such an admirable manner. ["Hear, hear."] The address shows that as an Association we aim at perfection, and it indicates the progress we have made along that path. I am glad to think that for future Presidents there will always be scope for addresses on the same lines.

Councillor A. M. GREGORSON (Edinburgh): As a humble and quite temporary member of the gas industry, I have the greatest pleasure and pride in seconding the vote of thanks. The address is one worthy of the Presidents of this great Association. Anyone spending a week-end in York, as I have done, must realize how the beauty of such a city must sink into the minds of those who dwell in it; and it is therefore not surprising that a great part of the President's address should have been taken up by the consideration of beauty in relation to industry. Last Sunday I happened to be reading a reference in the "Observer" to the perpetual fire kept up in the dwellings of the tribe which our Prince of Wales is at present visiting. The paragraph concluded: "There was a time when in England inn fires were kept alive for decades and even centuries; but what is the use of a perpetual flame in days of matches and gas fires and electric lighting? Or perhaps it is more accurate to say that the conception of the never-dying fire has been stabilized at headquarters, and has thus become a more reliable, though less spectacular, reality. Sir Michael Sadler observed the other day what an impressive object a gasometer might be, 'rightly placed and wisely painted.' And, indeed, if you think of it as to-day's altar of the never-dying fire, it seems to deserve more honour than it has."

The PRESIDENT: I am indeed most grateful to the proposer and seconder of the motion for the words in which they have put it before you, and I am also grateful to you all for the patience with which you have listened to my somewhat long address, and for the kind way in which you have expressed your appreciation of it. I may just say that it has been a matter of the greatest regret to me that during the year which I have served as President I have not been able to give that time and attention to your meetings that I should have liked to do, through circumstances over which I had no control. I do hope that my shortcomings during the year have been made up for by our conference here this week. We have a very large gathering, and I am venturing to hope that, so far, everything has been a success, and that so long as the conference continues this will be the case.

THE NEW PRESIDENT.

Mr. GOODENOUGH: I am delighted to announce that Mr. Frank Harding Jones has been unanimously elected President of the Association for the ensuing year, and that Messrs. Cash, Stone, & Co. have been re-appointed Auditors. It has given the Executive the very greatest pleasure to know that Mr. Jones will accept the office of President, and I am sure that pleasure is shared by all of you. He needs no introduction to the gas industry. [Applause.]

> The President-Elect (Mr. Frank Harding Jones, M.Inst.C.E.) is the son of the late Henry E. Jones, M.Inst.C.E. (Past-President of the Institution of Civil Engineers), and grandson of the late Robert Jones, M.Inst.C.E., both of whom held prominent positions in the gas industry. Educated at Rugby School, Mr. F. H. Jones was an articled pupil of, and subsequently an assistant to, the late Sir John Wolfe Barry, under whom he worked on the Tower Bridge and the Underground Railway in Glasgow. In 1896 he became a partner with his late father, and since then has been managing Gas and Water Companies.

Mr. FRANK H. JONES: I thank you all very much for doing me the honour of electing me your President. You are putting me on a roll of great names in the past. I am very proud to be on that roll. I am going to say very little, because, having heard what we have heard, and knowing what we are to hear, I have no wish to delay you. There are, however, two points which I should like to mention. The first is that, as I am Chairman of the Wandsworth Gas Company, where it would not be very convenient for you to meet, it has been suggested that the home of another Gas Company with which I am connected—the Eastbourne Gas Company—would be suitable. I hope if this idea is carried through, and the Wandsworth Gas Company and the Eastbourne Gas Company welcome you at Eastbourne next year, we shall have a successful and pleasant time. In the second place, I wish to make a confession. Having been trained long ago as an engineer, there was a time when I thought that when the gas passed through the governors and went outside the wall of the gasworks, that was the end. I assure you that to-day I know

very definitely that the other side of the wall—that is, keeping in touch with the consumer, and doing for him what is necessary—is just as important as, if not more important than, what goes on on the inside of the gas-works wall.

Art in Industry in Relation to Gas Fire Design.

Sir Lawrence Weaver, K.B.E., afterwards delivered an address upon this subject, illustrating his remarks by a series of lantern slides. We shall deal with this in a subsequent issue.

Mr. Goodenough proposed a hearty vote of thanks to Sir Lawrence Weaver for his address.

Mr. Michael Tapper (son of Mr. Walter Tapper, President of the Royal Institute of British Architects) seconded this, and it was carried by acclamation.

Business—Ancient and Modern.

This concluded the morning session; and after an interval for sightseeing, the members assembled in the De Grey Rooms during the afternoon for tea with the Gas Company, followed by a talk by Mr. Ernest Hunt on "Business—Ancient and Modern." The main parts of Mr. Hunt's address will be found in the pages of the "Gas Salesman" issued with this number of the "Journal." At the conclusion of the lecture, Mr. Bloor said that, as an industry, they tried to put into practice, and to make the leading idea in the conduct of their affairs, the message of "Service" which Mr. Hunt had given to them. He thought he might mention that Mr. Hunt had given them a message which was identical with that on which the British Commercial Gas Association was founded. When the "B.C.G.A." was inaugurated, at a meeting in Manchester, they had an address by Mr. Sheldon, of America—of the Sheldon School of Commerce. That address made an imperishable mark on many minds, and he believed Mr. Hunt's address that day would also leave a lasting impression. ["Hear, hear."] The lesson given by Mr. Sheldon—and it was probably the lesson which came nearest to that given now by Mr. Hunt—was "If you cannot think of any other reason for being honest, it is well that you should be honest because you think it is the best policy." When they considered the science of business, and they had to decide whether honesty or rascality was more profitable, it was well that they should decide in favour of honesty. Mr. Sheldon had said, in effect, "regardless of the question of right or wrong, the square deal pays." This was the message looked at from the purely material side; but he went further, and linked that material phase with the ideal of service as a thing good in itself. The address of Mr. Sheldon started off the "B.C.G.A." on that message; and they all hoped the address by Mr. Hunt would help them to carry on their work as an industry on that basis. Mr. Hunt had put the matter on a high plane, had elevated their conception of business, and had placed them under a great debt of gratitude. ["Hear, hear."] It was a fine thing to feel that in their business life they were accomplishing something for the benefit of mankind, as well as making a livelihood for themselves.

DINNER WITH THE YORK GAS COMPANY.

In the evening there was dinner in the Assembly Rooms, by invitation of the Chairman and Directors of the York Gas Company, to the President-Elect, Vice-Presidents, and members of the Association and visitors. The President was in the chair; and with him at the top table seats had been reserved for Mr. Frank H. Jones, M.Inst.C.E., Sir David Milne-Watson, D.L., LL.D., Mr. John Terrace, M.Inst.C.E., Mr. John E. Cowen, J.P., Mr. James F. Ronca, O.B.E., Mr. F. W. Goodenough, C.B.E., The Rt. Hon. The Lord Mayor of York, Sir J. A. R. Marriott, M.P., Sir W. H. A. Worsley, Bart., D.L., LL.D., Mr. John J. Hunt, J.P., The Very Rev. the Dean of York, Mr. James Melrose, J.P., Sir Russell Bencraft, M.R.C.S.E., J.P., Mrs. M. A. Cloudesley Brereton, Dr. Margaret Fishenden, Monsieur P. Mougin, Sir Lawrence Weaver, K.B.E., Alderman Sir William Kay, J.P., The Sheriff of York, and Alderman Sir Albert Ball, J.P.

The Loyal Toasts having been submitted from the Chair,

Sir J. A. R. Marriott, M.P., proposed "The Gas Industry." He said: I need hardly tell you how deeply I appreciate the honour which you have done me in inviting me to this banquet, and in entrusting to me what I suppose must be regarded as the toast of the evening. Perhaps you will measure my appreciation when I tell you that I have shortened a very short holiday, and travelled 400 miles for the express purpose of being with you to-night. There are two or three reasons why I will confess myself to be exceedingly glad to have been entrusted with this toast. The first reason is that, as you all know, the President for the year is our good friend in York, Mr. Alfred Procter. I have been associated with Mr. Procter in many connections—all exceedingly honourable to him, and I would add to me. Another reason is because your Association have been wise enough to select York for their conference this year. Nobody can need much persuasion to hold a conference in York. We in York greatly appreciate the compliment which you have paid to our Gas Company and to the Chairman of that Company.

Co-Partnership in Industry.

A still further reason why I am glad to propose the toast is that I have been for many more years than I care to say deeply interested in the application of the principle of co-partnership to industry. I am very well aware of the difficulties and the discouragements which that principle has encountered; but of this I am profoundly convinced—that of all the industrial problems which confront us to-day, there is none more insistent and more important than the adjustment of the relations of what are called, very misleadingly, Capital and Labour. I say that that is a misleading and inappropriate phrase. We ought rather to say the relations between the several partners in industry—those who contribute the brains to management, those who contribute the brawn to labour, and those who contribute to our great industries the capital which is indispensable to their progress and success. I insist upon the fact, not least in the realm of the gas industry, that it is the small capitalist—the thrifty little man—who contributes the capital by which the industry is maintained; and I need hardly remind this company that there is no industry which has been more consistently and uniformly successful in the application of the principle of co-partnership than the industry which they represent. It is only fair to remember that in your case the solution of the problem is rather simpler—it is with all statutory undertakings—than it is in those industries which are less free than yourselves from the fluctuations and uncertainties which affect our great export businesses. Your problem has been, I do not say simple, but relatively simple. Nevertheless, I think, if you will allow me respectfully to say so, your industry is entitled to the gratitude, not merely of your 100,000 and more employees, but of the whole community, for the contribution which it has made to the solution of the industrial problem.

A Noble Part.

But obviously all these considerations sink into relative insignificance compared with the intrinsic importance of the industry whose toast I am going to ask you to drink. When I made a rapid study of the figures which were kindly supplied to me, I was almost appalled at, but at the same time delighted with, the magnitude of the industry. We are boasting to-day of some of our new industries. Well, where would the motor industry be now, but for the tar which you have supplied to our roads in such generous profusion? Where would our poor, severely depressed agriculture be to-day, but for the sulphate of ammonia with which you have supplied it to fertilize our exhausted soil? Where should we be in our unending and ceaseless battle against disease and suffering, but for the large range of indispensable disinfectants with which the gas industry in its bye-products has provided us? And above all, where should we have been in the great war, in the face of a devilishly ingenious and highly scientific enemy, but for the explosives, the disinfectants, the fuel, and the road tar with which the gas industry supplied the country during that time? I am told—and I have no doubt about the accuracy of my information—that one Company alone supplied enough "T.N.T." to manufacture explosives to fill 160,000,000 18-pounder shells; that this one Company supplied 17,000,000 gallons of fuel oil; and that this one Company supplied 13,000 tons of disinfectants and sufficient tar to treat the whole of the roads used for military purposes on the Western Front. I confess that these figures are marvellously impressive to an outsider like myself. They represent a wonderful contribution to the machinery of war. But your contribution to the machinery of war is as nothing compared with your contribution to peace-time industry—to the amenities of domestic life. When I contemplate the figures that have been supplied to me, I think one must needs realize what an important part has been played in the economic, in the industrial, and in the social life of our people by the great industry to whose prosperity I ask you to drink. I am delighted to associate with the toast the name of one who, in a very special and honourable sense, represents the great industry—Sir David Milne-Watson, President of the National Gas Council, and Governor of the Gas Light and Coke Company.

A Long-Standing Debt.

Sir David Milne-Watson: I rise with great pleasure to respond to the toast which has been so eloquently proposed—namely, "The Gas Industry." The gas industry has always been a very retiring industry, and has said very little about itself in the past. Therefore, it is a special pleasure to hear to-night our praises sung by such an admirable orator as Sir John Marriott. I wish that all his fellow colleagues at Westminster were imbued with such sentiments as he is. I feel that then it would not be very long before such grievances as we have would be quite satisfactorily redressed. The nation does owe a great deal to the gas industry, only the debt is such a long-standing one that I am afraid the nation has quite forgotten it. As a matter of fact, really the nation owes its civilization to the gas industry. The gas industry brought us from darkness to light; and it is an industry which to-day is fulfilling a great many of the most important needs of modern civilization. Unfortunately for us, however, it is an industry whose birthday was 116 years ago, and, therefore, many people think it is an antiquated industry. In that they are very largely mistaken. Numbers of people talk to-day as though electricity is the only thing that matters. Well, it is not. The gas industry has just as important a part to play to-day and in the future as ever it has had in the past. I only hope Sir John Marriott will carry down to Westminster the information which he has so fully appreciated himself, and make his fellow members of Parliament and the Government feel we have something that we want done for us. ["Hear, hear."] We are not a jealous industry, and we do not at all grudge the success which our rival and friendly industry, electricity, has had; but we do ask for fair play. We do ask that the dice should not be loaded against us. We do ask for recognition of the work we have done in the past and the work we are prepared to do in the future. We have no grudge against electricity. We work together with them. We are very friendly with them. We are both out to forward the interests of the country; but we do ask that the Government should recognize the claims of the gas industry to equal treatment. I have no desire to-night to tell you of the things we want, because many of them are quite dull subjects. The issue of stock, the power to unite ourselves with allied industries, and such topics, are not very suitable for after-dinner speeches.

They are, however, quite serious matters when we come to our daily work. What I want to say is we very much appreciate what has been stated by Sir John Marriott, and we do hope the Government will take our case very seriously to heart, and that in the near future our grievances will be set right, and we shall be given an equal chance with electricity. I am very proud and pleased to find myself in the ancient City of York. At the centenary of the Gas Company we were entertained with great cordiality by the present Chairman and his colleagues, and, speaking on behalf of the gas industry, I can say with what pleasure we find ourselves here again, and how glad we are to see Mr. Procter once more in the chair, supported by his wonderful colleagues, almost as old as the gas industry. We have still with us Mr. Hunt, and that most remarkable man Mr. Melrose. It is almost impossible to think of the world as it was when Mr. Melrose was born, in 1828. Then we have our friend Mr. Bloor, who represents the younger generation. He is a very great help to us. We are deeply grateful to the Company for their magnificent hospitality, and shall take away most pleasant recollections of our welcome.

"THE CITY OF YORK."

Mr. FRANK H. JONES: The toast I have to propose is one which everybody in this room will heartily endorse—"The City of York," coupled with the name of the Rt. Hon. the Lord Mayor, Alderman Fox. He received us this morning in a very gracious manner, and he has again honoured us to-night by being with us at dinner. Most of you this afternoon heard a great deal about the history of York, and I think the Lord Mayor must be very proud of this wonderful city. There is one building which perhaps some of you have not seen. I had the advantage of being taken by Mr. Hunt to the Manor House School for the Blind. I am an ordinary person who tries, in his everyday work, not to forget the human side of things, and what struck me most in York was that building. If anybody thinks he has troubles, and that he is hardly used, he should get Mr. Hunt to take him over that school to see the people there at their work. I heard the voices and saw the faces of a large number of people, and there was no face other than smiling and no voice other than cheerful.

The LORD MAYOR: I have a feeling that the proposer and I have something very much in common. I should like to congratulate Mr. Jones upon the fact that he is following such a splendid President as my friend Mr. Procter. York is served by a body of men who give of their best to maintain the old traditions of the city.

Mr. J. J. HUNT, J.P. (Vice-Chairman of the Company): It is my pleasure to propose the health of our dear and respected friend, the grand old man of York, Mr. James Melrose. [Applause.] We are delighted to see him in the best of health and full of activity, after having reached "a century not out." We are proud of him. York never had such a man as Mr. Melrose has been. There is no more regular attender of our Board meetings than he. Mr. Jones has mentioned his visit to the blind school. Mr. Melrose has been on that Committee I cannot tell you for how long; and he still takes a great interest and pride in the Institution.

Mr. JAMES MELROSE, J.P. (after the toast had been drunk with musical honours): I cannot find words to express my gratitude for the enthusiastic reception you have given me. I can only say that throughout my life I have tried to do my duty. The proper thing is to do whatever good you can while the opportunity is there. You will regret it right through your life if you do not do this. My connection with the Gas Company, which extends over between 40 and 50 years, has been a very pleasant one. I have always got on excellently with my colleagues.

"THE VISITORS."

The CHAIRMAN: We feel we have some reputation in York for hospitality; and the Gas Company have done their best on this occasion to maintain it. This conference has been a great event in the history of the Company, and I hope it will prove a complete success. I trust you will take away pleasant recollections of your short stay in our beautiful old city. I propose the toast of "The Visitors."

Sir W. H. A. WORSLEY, Bart., D.L., LL.D.: I wish to express, on behalf of the guests, the sense of deep appreciation we have of our reception this evening. This great Company are engaged in a work of the first importance, and we wish them every success in their endeavours.

THE INSTITUTION AND THE CHARTER.

Mr. JOHN TERRACE: Being present as President of The Institution of Gas Engineers, which is closely associated with the Association holding this meeting in York, I feel I must, on its behalf, express deep thanks for the hospitality extended to us. Everything that is helping forward the gas industry is advancing the welfare of us all. I should like to take this opportunity of mentioning one or two matters. The Institution of Gas Engineers is one of the oldest of the technical associations in the country. We have had among our members some of the most notable men in the gas industry, and we have always tried to keep up-to-date. It has been felt for some considerable time that the doors of the Institution should be widened; and in an attempt to achieve that object we have applied for a Royal Charter. It was hoped by the more optimistic members of the Institution that the Charter would have been granted ere this; and I mention it now to make known to those members of the Institution who are present here to-night that we think it will not be very long before it is an accomplished fact. We have had to make it clear that in future only those who possess the necessary qualifications will be admitted; and this works in exceptionally well with the Education Scheme which had been brought into operation before the Charter was applied for. I wish to appeal to all those who have charge of gas undertakings to do everything they possibly can, by making themselves acquainted with the working of that scheme, and in other ways, to help those who are working under them to enter the lists and push along, so as to be future members of the Institution. I also wish to appeal to the members of the District Education Committees which have been appointed, because upon them devolves the duty of seeing that the proper educational facilities are made available to those who may desire to take advantage of them. Last of all I wish to appeal to those to whom we do not always get a chance of appealing. There are present to-night many directors of gas companies and members of gas committees; and I would urge them not to be backward when their engineer comes forward and asks for suitable facilities to be given to the young men to enable them to take advantage of the Education Scheme. It is upon the education and proper training of the youth of to-day that the future of the industry depends. Another point I should like to mention is the proposed gas conference at the British Industries Fair in February next. It is sometimes said that as an Institution we are too exclusive, and that we cannot get the right people there to discuss subjects as they ought to be discussed. We have widened our doors to admit those from the gas industry who are able to qualify for membership; and we should like to take the opportunity when we come together at the British Industries Fair to have a joint meeting of The Institution of Gas Engineers, the National Gas Council, the British Commercial Gas Association, and the Society of British Gas Industries. I hope each one of you will do his best, not only to come to see the Fair, but also to take an active part in the conference.

A MESSAGE FROM FRANCE.

M. P. MOUGIN (Secretary of the Union Syndicale de l'Industrie du Gaz en France): I am this evening particularly proud of having the privilege to bring a message to the British Commercial Gas Association, speaking in the name of the French gas industry. I am happy to thank you in the name of all who, near or far, follow with interest the work of your meeting, by means of your technical papers or by the reports that have been made. The "B.C.G.A." has for a long time been a living example of the importance of united effort on the subject of public education and general propaganda. I really think that I cannot give you a better proof of the great interest that we all take in France concerning the work of the "B.C.G.A." than by telling you that we have during the last few weeks arranged a similar organization. I would remind you of the encouragement that Mr. John Terrace, then Vice-President of The Institution of Gas Engineers, gave us at Lille last year. He then said: "You have created the Union Syndicale; but you will see that one day it will be necessary to organize a Commercial Union. Do not hesitate; go on." I can now assure him that we have followed his advice. We have gone forward; and we do not doubt that the efforts we are now making will be rewarded, as have been those which you embarked upon nearly twenty years ago, and by which you have shown the way to all of us. Thanking you once more in the name of the French gas industry, I also want to tell you—speaking in the name of the great number of those of us who cross the Channel to learn about your methods and your experience—how grateful we all are for the hearty welcome you have always given us.

OUR HOSTS.

Mr. F. W. GOODENOUGH: There is one toast we must all wish to drink with enthusiasm—"The Chairman, Directors, and Officers of the York Gas Company." I am sure we have all greatly valued the opportunity of making closer acquaintance with our Chairman, the President of the Association, Mr. Procter, and of listening this morning to his masterly exposition. We have also had this evening the pleasure of hearing two other Directors. We desire to thank from the bottom of our hearts the Chairman and Directors of the Company, as well as our good friend Mr. Bloor, to whose organizing capacity and great geniality the success of this conference is largely due.

The CHAIRMAN: I am almost overcome by the words of the Executive Chairman, and in reply can only say, what my friend Mr. Melrose has already said, that we have all tried to do our duty. A very great deal of work in organizing the conference has been carried out by Mr. Bloor. It is impossible to say too much of the excellent manner in which he has organized and managed these proceedings. I will ask him to acknowledge the toast on behalf of himself and those who have assisted him.

Mr. H. E. BLOOR: I cannot say how delighted I am to feel that you are enjoying your visit to York. It is a city worthy to be served, and the Company I serve is worthy to be served too. I am proud of both.

WEDNESDAY'S PROCEEDINGS.

LOCAL PUBLICITY, WITH SPECIAL REFERENCE TO SHOWROOMS.

Wednesday's proceedings opened with the reading of a paper by Mr. BLOOR on the above subject. The paper, and a report of the discussion to which it gave rise, will be found elsewhere in this issue.

REPORT AND ACCOUNTS.

The conference then proceeded to consideration of the report and accounts, which were presented by the Executive Chairman.

Seventeenth Annual Report of the General Committee.

The General Committee presents to the members, associate members, the administrators of gas undertakings, and the members of the Society of British Gas Industries subscribing to the Association, their Seventeenth Annual Report and Statement of Accounts.

INCOME AND EXPENDITURE.

The audited accounts for the financial year ended March 31 show that the Association's net income has increased by approximately £9200, due (*a*) to the increased rate of subscription—the joint subscription to the National Organization was increased to 6*s.* per million from April 1, 1927; (*b*) to increased make of gas; (*c*) to an increase in the number of undertakings subscribing; and (*d*) to an increase

from partial to full subscription by several undertakings. This increase in income, with the addition of money previously set aside for smoke abatement propaganda, enabled the Association to increase the amount of money spent on Press publicity and general propaganda by just over £11,300, as compared with the previous year.

The net increase in subscriptions from gas supply undertakings was £8197, and that in subscriptions from members of the Society of British Gas Industries and other manufacturers of plant and appliances was £382.

The income exceeded expenditure by nearly £383, and the debit balance of £775 carried forward from March 31, 1927, was correspondingly reduced.

Growth of Membership of the Association.

Though the number of gas supply undertakings subscribing to the Association represents, on a basis of output, close on 95 p.ct. of the total industry, effort is constantly being made to secure the support of those undertakings representing the balance of 5 p.ct., and to persuade the comparatively few undertakings at present subscribing on only a partial basis to increase their contributions to the full rate paid by the great majority.

The past year has been a particularly successful one in this connection, 68 undertakings having been added to the list of members (representing an addition of over £1600 to the Association's annual income), while 16 undertakings have increased their support to the full basis.

Basic Rate of Joint Subscription.

As was mentioned in the report for the previous year, the appeal for increasing the basic rate of subscription from 5s. to 6s. per million c.ft. made, which was addressed to the industry in a letter signed by the Presidents of the three National Organizations, received an immediate response from 60 p.ct. of the total joint members. During the past year that percentage has been increased to over 90.

Having regard to the gratuitous publicity constantly given to electricity by Ministers and Government officials, and politicians of all parties, and the relative insignificance of the Press publicity and propaganda which the existing income allows the Association to conduct on behalf of the industry, subscribers have been asked to provide funds for substantially increasing this publicity—which is all pro-gas, not anti-electricity publicity—by increasing their contributions by 1s. 6d. per million, the whole of which is to be devoted to Press publicity. That increase in subscription represents on an average less than a halfpenny per consumer per annum.

This appeal has received to date the support of close upon 50 p.ct. of the members, and the Association will be in a position materially to increase its publicity during the next few months in those districts from which the increased funds have been received.

It is hoped that the excellent lead given by half the industry will have the effect of securing the favourable consideration of all members to this most important matter in the near future. The need is pressing.

National Publicity.

During the period covered by this report, Association advertisements have regularly appeared in the various national and district newspapers and other periodicals approved by the Committee.

The early spring of 1928 saw the appearance of the first series of "Mr. G. A. Service" advertisements occupying somewhat larger spaces than usual, with the object of giving a good send-off to the 1928-29 campaign, which actually commenced in April last.

This particular series, which was designed to bring home to the public the "service to the consumer" which the industry was equipped and ready to give, and so to consolidate existing business, as well as securing new custom, has aroused a considerable measure of interest among the public. The large number of postal as well as personal inquiries received constitutes striking evidence of the public's desire for assistance in problems relating to the use of gas for various purposes, as well as of their lack of knowledge as to the practical possibilities and advantages of gas service. Inquiries have been distinguished by a marked degree of genuine interest and desire for service, as distinct from the request for a "free booklet" or "catalogue" type of communication.

The new series of advertisements has received the approval of members generally, many of whom are using the copy for local publicity.

The Association's publicity in the Technical Press, circulating among doctors, architects, and other professional men and women, builders, plumbers, ironmongers, &c., has been continued.

Local Publicity.

Requests from members for assistance in connection with local publicity campaigns—including both direct advertising and indirect propaganda—have been particularly heavy during the past year. This is a gratifying indication of increased local effort, and constitutes moreover a corresponding addition to the force and value of the Association's national and district campaign.

Educational Propaganda.

Children's Fairy Gas Competition.

The Thirteenth "Fairy Gas" Competition (of which the results were announced on Sept. 14) created a record; the entries received numbering nearly 17,000. This year an intermediate Section was introduced for children between the ages of 9 and 12. This proved a very popular innovation, as over 7000 children competed in the new class.

The two £50 scholarships were again awarded; the winners being a girl from Birmingham and a boy from Dundee. The latter won a third prize in last year's Competition and made good use of some of the knowledge he then acquired.

The Senior Section essay dealt with various uses of gas in relation to well-cooked food, fresh, clean air, and healthy heat; the intermediate competitors, with the help of a little illustrated leaflet, had to write a letter dealing with the advantages of the gas cooker; the juniors had two contrasting pictures to paint. Some excellent entries were received in all three sections. Both the scholarship winning essays were sound, well-written pieces of work; some very amusing letters were written by the intermediates; and among a number of good paintings, the work of the first-prize winner in the Junior Section for Scotland (aged 8) stood out as really a skilled painting.

There is unmistakable evidence that the Competition meets with the approval of educationists all over the country, and that many teachers use the tasks as class work, and give lessons on them. In several cases teachers sending up batches of entries have indicated that the work was done in classes, and that they have selected those efforts which they considered worthy of consideration by the Association's judges.

Many members took an active interest in the Competition, making it known throughout their districts. Twenty-nine districts in England and Wales and seventeen districts in Scotland participated in the national prizes, and entries came this year from the Channel Islands and from the Orkneys.

Public Lectures.

During the year many invitations have been accepted for giving lectures on various aspects of the gas industry to Rotary, Publicity, and other Business Clubs, at exhibitions, and to semi-business organizations, such as debating societies, literary societies, and so forth. The Association has also supplied members with material for addresses which have been given locally.

This form of propaganda is useful from the points of view both of stating facts with regard to the industry and of keeping gas prominently before the public. It is hoped that members will lose no opportunity in this direction, and will not hesitate to avail themselves of the assistance of the Association in connection therewith.

A new series of gas service lectures has been prepared by the Editor. One upon the "Domestic Uses of Gas," illustrated by lantern slides, has been completed during the vacation, showing the very latest gas practice. Copies of this will be available on application to the Secretary.

Refrigeration by Gas.

Public attention was focussed on refrigeration in July last when the regulations of the Ministry of Health regarding the use of preservatives in food were finally and fully brought into operation, and the Association's publicity during the summer has given prominence to refrigeration by gas. In addition to display advertisements, meetings were arranged at which representatives of the Press were supplied with full information, illustrations, &c., suitable for articles in newspapers and magazines.

The Association had the honour of the company of Sir William Arbuthnot Lane (President of the New Health Society) at a meeting of Women Journalists at which Sir William gave a valuable address on the subject of refrigeration.

Very extensive and widespread Editorial Press notices have been secured, and a remarkable degree of public interest aroused. There is unquestionably an extensive field for this new use for gas.

The Editor read a Paper upon Refrigeration and the New Food Regulations at the Royal Sanitary Institute at Plymouth, when close on 2000 delegates and visitors attended the Annual Conference. The Mayoress presided, and the Medical Officer was present, and he directed all his staff of Health Visitors to attend and take notes. The Medical Officer also placed half of his Health Department stall at the Health Exhibition in connection with the Congress at Mrs. Brereton's disposal, free of charge, to display models of a gas refrigerator and a gas incinerator; and he distributed some 1000 copies of the speech. The reprint of the speech (in two parts (*a*) Refrigeration, (*b*) Incineration) is now available for members for distribution to doctors and others.

Service to Members.

Personal service to members in a wide variety of directions by all branches of the organization is a phase of the Association's activities which increases year by year. It is impossible, within the limits of this report, to give any detailed account of the record during the past year; but special reference is made to the inquiries handled for assistance in connection with special local publicity campaigns, with exhibitions, with showroom design and display, and also in the organization of various sections on the distribution side, such as stores, stove shops, offices, &c.

Sales of Publicity Material.

The past year saw the sales of publicity material to members for local distribution exceed the previous highest record. A gratifying feature of the regular development of this section of the Association's service is the corresponding increase in the number of members making use of the service.

In addition to the preparation of the printed publicity material, increased attention has been given to the preparation and supply of various publicity items for showroom display purposes; and this service is also in increased demand by members.

The Association is indebted to several members for practical suggestions and ideas, many of which have been adopted.

District Conferences.

A successful series of District Conferences was held during the year in Scotland (at Edinburgh), in the South Western District (at Ilfracombe), in the Midlands (at Redditch), and in Cornwall (at Truro). At all these conferences gas in relation to public health was the principal feature of the programmes. Considerable and valuable local and district publicity resulted.

District Meetings.

Meetings of the District Committees were held during the past year, at which the work and policy of the Association were fully discussed.

These meetings, which will be continued regularly in the future,

provide a practical means whereby close touch can be maintained between Headquarters and the District Committees, and the views and requirements of the districts can be ascertained and considered.

GAS SALESMEN'S CIRCLES.

The work and membership of the Salesmen's Circles, organized by the Association in the various districts, continue to develop, and the Circles are undoubtedly accomplishing good practical results in the development of the salesman in the industry. There has been no lack of variety in the subjects which have formed the basis of discussions at the past year's meetings; and it is most gratifying to be able to add that there has been an appreciable increase in the number of members taking active part in the discussions. During the year, Miss Gladys Burlton, B.A., has given a series of valuable addresses to the Circles on "Problems of Salesmanship."

BRITISH INDUSTRIES FAIR.

The Association co-operated with the Special Committee responsible for the organization of the very successful Gas Industry Section of the British Industries Fair held in Birmingham in February last, and was represented in the Section by an educational exhibit dealing with smoke abatement and bye-products. The General Committee paid an official visit to the Fair, following their meeting held in Birmingham; and a visit by members of the Salesmen's Circles was also organized.

The Association is acting in close co-operation with the Committee responsible for the enlarged Gas Industry Section at the 1929 Fair at Birmingham, and with the other National Organizations, who have been invited to organize and hold a Joint Gas Conference at the Fair.

THE SELECTION AND FIXING OF GAS FIRES.

Realizing the great importance of ensuring the highest possible standard of service by the industry in the selection and fixing of gas fires, and with the object of preparing a standard guide on the subject acceptable to the whole industry, a paper (accompanied by a series of diagrams, illustrations, and photographs) was prepared for the Association by an expert, and circulated to the various Salesmen's Circles as a basis of discussion by the salesmen. Reports of the discussions, at which many practical suggestions were put forward, will be referred to a Joint Committee which it is proposed should be set up in co-operation with The Institution of Gas Engineers with the above-mentioned object in view.

BUILDING BY-LAWS AND VENTILATING FLUES.

While the Association's negotiations with the Ministry of Health on this question have not yet reached a stage when a further report can be made, the matter is being actively pursued. Every opportunity is being taken—and the Association is being supported by members who have taken action locally—to prevent, in particular, the construction of rooms without flues. Mr. A. H. Barker, B.Sc., has, during the past year, continued his investigations on behalf of the Association; and it is hoped he will be in a position to present a report of considerable interest and practical value in the near future.

GAS FLUE CONSTRUCTION.

While the widespread approval and adoption by architects and builders of the "Economy" gas fire flue is a matter of gratification to the industry, practical experience has demonstrated the necessity of preparing suggestions for the guidance of all engaged in the design and construction of these flues. Through the courtesy of the Gas Light and Coke Company, the Association was able to reprint, for distribution by members generally, the book (with a series of effective drawings) entitled "Gas Flue Construction" prepared for the Company by Mr. Walter Tapper, A.R.A., P.R.I.B.A.

VICE-PRESIDENTS.

The following have been added to the list of Vice-Presidents of the Association during the year:

Alderman E. J. Holland, J.P. (Sutton).
Councillor H. Carver, J.P. (Leicester).
Dr. H. Mason (Leamington).
Mr. T. S. Short (Sunderland).
Sir Joseph Calvert (Middlesbrough).
Councillor E. L. Clarke (Leeds).
Mr. J. E. Daw (Exeter).
Major R. P. Kitson (Torquay).
Mr. R. J. McBeath (Stretford).
Mr. J. E. Norman (Weston-super-Mare).
Mr. Lawrence G. Williams (Cardiff).

OBITUARY.

The Association suffered loss in the death of Alderman W. F. Vint, J.P., a Vice-President of the Association and Chairman of the Sunderland Gas Company, who always took a warm interest in the work of the Association.

Two other losses by death closely concerned the Association—namely those of Mr. J. C. Moberly, M.A., the Chairman of the Southampton Gaslight and Coke Company, of whose hospitality at the Southampton Conference members will always retain the happiest recollections; and of Mr. Arthur F. Bezant, Editor of the "GAS JOURNAL." Mr. Bezant, both by his personal counsel and in the columns of the "JOURNAL" he so ably edited, gave to the work of the Association most valuable support. The Association's Salesmen's Circles formed a movement in which he took a special interest, and he gave it continuous support through the "GAS SALESMAN" Supplement of the "JOURNAL."

ALTERATIONS TO THE CONSTITUTION AND RULES OF THE ASSOCIATION.

Recommendations for the amendment of several of the Rules of the Association have been made. When the Association was formed in 1912 under the auspices of The Institution of Gas Engineers it derived its income from the Special Purposes Fund of that Institution, and the Rules of the Association were framed accordingly. It is with the object of bringing these particular sections into line with present-day practice, as well as to facilitate other phases of the Association's work, that the amendments are made.

NEXT PRESIDENT.

The Committee have the pleasure to report that Mr. Frank Harding Jones, M.Inst.C.E., Chairman of the Wandsworth, Wimbledon, and Epsom District Gas Company, has consented to be nominated for election as President for 1928-29.

A GOOD CAUSE.

Mr. GOODENOUGH: It is now my pleasure to move that the seventeenth annual report of the Committee and the statement of accounts be adopted. They have been circulated, and we have not had any criticisms sent to us. But I do want to emphasize one or two points. I want to emphasize the importance of this Association being furnished with sufficient funds for carrying out its publicity work. Mr. Robert Watson has already drawn your attention to the increasing importance of publicity, because the greater part of our business to-day is invisible, and so not known to the public unless we tell them about it. We have a customer in London who, I think, consumes over 600,000,000 c.ft. of gas per annum, and not a single member of the public would realize, on going into one of the shops of the firm, that gas was being consumed there. That is a fairly considerable consumer, and we have a good many other big ones. Several of our largest consumers are firms engaged in the electrical industry, and no one would imagine we have an account of £25,000 a year with a firm making electric lamps. The greater part of our business is invisible and unknown to the public; and it is of increasing importance that we should, by effective publicity, tell the world at large that we are a more rapidly than ever growing industry, and in no sense a moribund or decaying one. I am very glad Mr. Watson emphasized that point, because it draws attention to our need for increased funds to spend on publicity. There are other reasons why we need additional funds apart from the constant advocacy of electricity by politicians, as well as interested parties, and the growing invisibility of our business to which Mr. Watson has alluded. There is also the fact that since the war newspaper space has cost a great deal more than before. Moreover, in recent years advertising as a whole has largely increased. Take up a copy of a popular weekly of world-wide fame, note the number of advertisements, and compare it with any pre-war issue of the same paper. You will then see how necessary it is that your advertisements to-day should be enlarged in space and increased in number, if you are to retain the same relative amount of publicity as when your companions were fewer and the space they took was smaller. If we are to retain our relative position as advertisers compared with other advertisers, we must be prepared to spend more money. The Executive are much heartened by the response already made to the appeal for a voluntary increase in subscription from 6s. to 7s. 6d. per million c.ft., to be spent on newspaper publicity. We have had a substantial response, and have reason to believe we shall get a much greater one. There is one big city not many miles from York, in a neighbouring county, which we know is prepared to subscribe if other large undertakings come in. We have every reason to believe we shall in the near future secure a large accession to the list of undertakings subscribing the extra 1s. 6d., and on behalf of the Executive to-day, I ask you all to help us to get the industry in its proper position by inducing your directors or committees to join the list of the extra 1s. 6d. subscribers.

DEATHS.

There is one omission from the annual report which I wish to make good to-day. In writing our obituary notices of the year, we quite unintentionally left out the name of our old friend, whom we were sorry to lose, Peter Robertson, the Editor of the "Gas World." We owe, as an Association and as an industry, a great debt of gratitude to Peter Robertson for his work in the past. He was a first-rate journalist, and was regarded in Fleet Street as a man of exceptional capacity. We had every reason to be thankful for his consistent support of every movement for progress in the industry, and I will ask you to regard as added to the report this reference to the sad loss we have suffered. Another loss since the report was written is our friend Mr. Meunier, of Stockport. We much regret and deeply mourn the loss of Mr. Meunier, who was one of the originators of the movement which led to the formation of the "B.C.G.A."

TASTE NOT A MATTER OF COST.

I would like to say, with regard to Mr. Bloor's paper, that I do not look upon taste as by any means a matter of cost. It is quite possible to have your showrooms decorated in the best of taste by a first-class architect without any great expenditure. When fishing, I believe in having my bait as near the fish as possible, and not round the corner. I would rather have it where the trout will rise to it. That is my answer to the reference to payment of accounts in showrooms.

THE SALESMEN'S SECTION.

Mr. H. D. MADDEN (Cardiff): I have pleasure in seconding

the resolution that the report and accounts be adopted. I think the money which the "B.C.G.A." receive is always well spent. I do not know what the industry would do without that help, and I would like to say that the districts, as apart from London, thoroughly appreciate the work the Association are doing. I have never appealed to the "B.C.G.A." from South Wales for help without its being at once forthcoming, and such help to us is of immense value. There is one branch of work which the local areas value highly—the work of the Salesmen's Section. I have seen the benefits of that among my own staff. We all of us realize the excellent work done by the officials of the Association, who are always courteous and desirous of rendering help.

The motion was agreed to.

Vote of Thanks.

Mr. Goodenough: I should like to propose a very hearty vote of thanks to our friend Mr. Procter for his services as President during the past year, and for presiding over our conference.

Mr. Frank H. Jones seconded the proposition, which was heartily carried.

The President: I only wish the services I have been able to render had been more numerous, but I have done what I could. I would like to emphasize what Mr. Madden has said about the work of the officers of the Association in London. The care and foresight with which our affairs are managed at headquarters are simply marvellous. Especially would I like to refer to the Editorial Department, which is so very ably and so very delightfully presided over by Mrs. Cloudesley Brereton. As a commercial organization intended primarily for the sale of goods, nothing is more important than the direction of that side of our business, and it would be impossible that it could be done with more effect, with more efficiency, and with more charm than it is done by Mrs. Cloudesley Brereton. I have the greatest confidence and pleasure in handing over my duties to Mr. Frank Jones, who will direct the policy of the Association with conspicuous success.

Methods of Charge.

The session of the Association was followed by a private one, jointly with the National Gas Council, to discuss methods of charge.

LUNCHEON.

In honour of the President, Mr. Alfred Procter, and the Directors and officials of the York Gas Company, the Association gave a luncheon in York's historic oak-pillared Guildhall on Wednesday.

The President-Elect (Mr. Frank H. Jones) presided, and submitted the toast of "The Chairman, Directors, and officials of the York Gas Company." He said: There must be in your minds a certain amount of sorrow at parting with Mr. Procter as President, because he has been a famous successor to many other great men who have filled the office. He has not only shown us how to do business, but his kindness and the hospitality of the York Gas Company and himself have been a lesson to us all. Mr. Procter has carried out all the duties of a President efficiently and excellently; and he and his colleagues have entertained us and taken personal care of us all. It is our pleasure to-day to return in some small degree the kindness shown to us in York; and we thank you very sincerely. I venture to say that if the gas undertakings throughout the country were controlled and managed by the type of people we have been entertained by in York, the industry would not have the great need of the Commercial Gas Association that it has to-day.

Mr. Procter, offering his thanks, said the Company had endeavoured to live up to York's reputation in providing means for business conferences and for entertainment as well. "I should like to say," he added, "how very pleased I am to hand over the reins of office to Mr. Jones. Under his guidance the Association will prosper; and we wish him and the Association another year of success, prosperity, and efficiency in watching over and guiding the interests of the gas industry." Mr. Procter pointed out that a large measure of the credit for the successful arrangements for the conference belonged to Mr. Bloor, who had a marvellous capacity for organizing.

Mr. H. E. Bloor also responded, and said the Association officials, who had shown delightful courtesy and efficiency at every turn, had put a great deal of work into the conference arrangements. He acknowledged his debt of gratitude to them, and thanked his staff at York for their co-operation, which had relieved him of all trouble and anxiety.

Mr. John E. Cowen (a Past-President of the Association) proposed the toast of "The Executive Committee and Staff of the B.C.G.A." He said: The admitted success which the Association has achieved, and the manner in which it has held the confidence of the gas industry of the country during the short time in which it has been in existence, are, in my opinion, remarkable. It could not have held that confidence without the efficiency which has been shown in the work of the Association. The way in which the interests of the companies and corporations have been harmonized and handled is a tribute to the right men in the right places in connection with the executive and the officials.

Mr. F. W. Goodenough, acknowledging the toast, remarked: I can only say, on behalf of all of us, that we work together like a band of brothers, and it is a labour of love to us to do all we can to further the interests of the Association and the industry that it exists to serve.

Amending Gas Legislation.

So much has already been said regarding the need for amendment of the legislation under which the service of gas supply is conducted to-day that only the great urgency of reform justifies me in dealing with the subject before an audience which, for the most part, is thoroughly conversant with every aspect of the difficulties and restrictions under which gas undertakings have so long laboured. Remarkable as it may seem, I feel that it is only by constant reiteration, at all times and seasons, that we shall bring home to those responsible for the initiation of legislation, not only the justice of our cause—indeed, that is seriously gainsaid by none—but also its urgency.

Were we what is known as a "distressed" industry, I have not the slightest doubt that, whether our distress were due to our own fault or to circumstances over which we had no control, the Government would be lavish in its efforts to aid us to put our house in order. Equally, if our cause were highly spectacular; if it appealed vividly to the popular imagination; if we purported to be about to create a new heaven and a new earth, we should not have to clamour for consideration. It would be thrown at us in almost embarrassing volume by those who even now must be casting a somewhat anxious eye upon electioneering contests which must take place next summer. The great public utility which we represent is not distressed. It is for the most part prosperous and progressive, and that despite the antiquated and unnecessary impediments which the Legislature continues to maintain in our path.

Our cause is not spectacular. We do not claim that we can provide a panacea to all the ills to which the body politic is heir. We only claim to give sound national service twenty-four hours a day for 365 days in the year in practically every home and factory in the country; and to have a beneficial effect on the health, wealth, and happiness of the whole community. Are these good and sufficient reasons why the claims of a great industry should be ignored? Is an industry to be denied justice until it is tottering towards the Bankruptcy Court, or until it makes itself a pestilent nuisance? Surely not! Well, it is now two years since our proposals were received, and quite sympathetically received, by the Board of Trade; yet so far nothing in the form of a Bill giving effect to these proposals has emerged. Frequent efforts have been made to expedite their transit; but these have proved fruitless, and we are told to-day that the remaining time at the disposal of Parliament is now insufficient to admit of remedial legislation being dealt with.

I will not take up your time by recapitulating the reasonable requirements, the modest, the almost too modest, requests of the industry. That has been most admirably done by Sir David Milne-Watson in a letter which appeared in "The Times" last week, and which no doubt all of you have read and applauded. He has made it clear to all the world why it is that the industry is chafing at the delay to which its claims are being subjected.

In my opinion, and in that of many others, the delay is fast becoming intolerable; and it is for that reason that we must marshal our forces; and make it clear that our power is very far from being negligible. We are a highly organized industry; we are in close and regular touch with our consumers, shareholders, and workers; and we can show to each that their interests are being jeopardized. Some £113,000,000 of capital invested in companies alone, mostly in small shareholdings, means a considerable army of shareholders; and there are over 9,000,000 separate gas installations, which represent, at a conservative estimate, some 40,000,000 persons who have the benefit of a supply of gas. To these fall to be added 115,000 workers directly employed in the making and distribution of gas.

In the past we have evidently been too unobtrusive, and too peaceable. The time has now come to rid ourselves of these attributes temporarily, and not to resume them until justice has been done.

The Press.

Mr. Goodenough gave the toast of "The Press."

Mr. J. C. Bex (Editor of the "Yorkshire Herald"), in acknowledging it, said the Press had done its best to give the widest possible publicity to the proceedings of the conference, and he hoped it would have the best possible effect. "The Press," he said, "is out to support British industry in all its ramifications; and we shall do our best to support the gas industry and its plans and ambitions in the near future. The success of British industry should be the concern of us all, and especially the newspaper Press, which lives upon it, and must do its best for it."

PUBLICITY HALL.

Publicity Hall provided visitors to the conference with an excellent opportunity to obtain a first-hand impression of the many and varied activities of the Association, particularly in relation to the well-developed "service to members" side of its work. The entirely new scheme of design and decoration used this year formed a striking setting for the wide range of literature and other publicity material of all kinds displayed there, and in which members evinced considerable interest. The following is a brief description of the various items comprising the display.

Literature.—This familiar branch of the Association's work was featured in a large panel of literature facing the entrance hall, composed of copies of advertising literature and indicating the extent to which this service has been developed.

National and District Publicity.—This was demonstrated in a model bookstall containing copies of all publications issued during September in which the Association took space, by which all classes of the community are reached, a large proportion of whom have the advantages of gas brought to their notice in a number of publications other than the newspapers.

Local Press Publicity.—Members desirous of supplementing the work of the Association by the insertion of advertisements in their own local papers found suggestions on various branches of the subject displayed in varying sizes, and information as

to the very moderate terms upon which the Association is prepared to supply blocks.

"A Thousand-and-One Uses for Gas."—This publication is mainly of a specialized nature, each issue being designed to appeal to a specific trade, and the value of gas for industrial processes being described with the assistance of photographs of actual installations under working conditions. We understand that a number of undertakings have adopted the useful practice of circulating copies of this publication regularly each month to all industrialists in their area of supply, with a view to keeping them in touch with up-to-date gas practice, apart from the particular trade with which the issue deals. It has been found by the Association that inquiries are received many months after the issue of a particular number—which is ample proof that copies are filed for reference purposes.

Showroom Publicity.—There has been a ready response from the industry to this comparatively new offer of service, and the Association has been able to develop its activities in this direction considerably during the past few months, with the result that an exceptionally good range of showcards and posters is now available. Particular interest has been aroused by the institution of a loan scheme, which provides for a regular change of posters at a cost graduated according to the period and extent of the contract.

Cinema Publicity.—To meet the numerous requests from members for material for use in cinemas, the Association has found it necessary to obtain an extensive range of lantern slides on all subjects; and almost one hundred of these are now ready. Most of them are illustrated and coloured effectively, and members are now able to secure a regular change of appeal at a very small cost.

Showrooms.—The Association's services are frequently in demand by members who are proposing to erect new showrooms or reconstruct existing premises; and the proposals submitted by the Association have been adopted by many undertakings since this service was instituted. By arrangement with leading manufacturers, the Association is also in a position to offer substantial discounts off list prices for showroom and office equipment; and full particulars will be forwarded to members on request.

The Commercial Organization Section also continues to give practical service to the industry, and many interesting details of working economies which the Association's systems are able to effect were available in the hall.

CROWN FRAMING OF GASHOLDERS.

By S. M. MILBOURNE, A.M.I Struct.E.

The primary object of crown framing in the construction of a gasholder is to provide adequate support to the domed roof when the holder is at rest in the tank, or out of commission. This means of support is necessary owing to the fact that the thickness of the crown sheeting is very small in comparison with the diametrical area it covers, and in consequence does not possess sufficient stiffness to retain its original shape without assistance when the inner lift of the holder is landed on the rest blocks.

When gasholders were first introduced, it was the usual practice to support the crown sheeting by a system of wooden trussing attached to the top curb of the holder. In a few instances, however, the crown sheeting was supported by struts of wrought-iron tubing fixed equidistant round the bottom curb of the bell, their upper ends being attached to concentric rings of purlins; but this form of bracing was uneconomical in construction, owing to the comparatively long length of the supporting struts. In the earlier holders, the crown sheeting was invariably riveted to the rafters and purlins; but this practice was eventually abandoned, as it was found more desirable to allow the sheeting to rest freely on the rafters. Gasholders have also been constructed with an external framing to the crown, but this means of supporting the roof was not adopted to any great extent.

As gasholders of larger diameter were eventually required, it became general to support the crown by means of a permanent system of timber or steel framing attached to uprights fixed to the tank bottom. The advantage of this type of framing was that the gas pressure thrown by the inflated holder was reduced. Within recent years, however, owing to the necessity of providing increased gasholder pressure, it has become desirable to revert to the trussed crown framing attached to the top curb of the holder, while the centre of the framing is supported by a brick or steel pier "A" as shown in fig. 1.

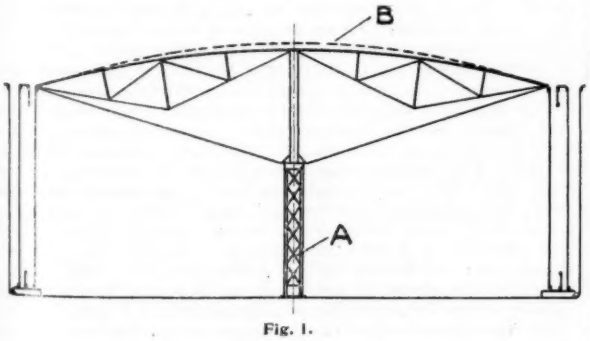


Fig. 1.

The chief advantages of this type of framing are as follows:

(*a*) The gas pressure thrown by the inflated holder is increased in proportion to the weight of the crown framing.

(*b*) The compressive load acting on the top curb of the inflated holder may be considerably reduced providing the framing is carefully designed.

The increase in gas pressure thrown by the holder due to the weight of the crown framing may be ascertained as follows:

Let W = total weight of crown framing in tons.
D = diameter of holder in feet.

Then the pressure increase in inches of water (p) is given by the equation

$$2240\ W = \frac{144 \times \cdot0362 \times \pi \times D^2 \times p}{4}$$

Therefore

$$p = \frac{547\ W}{D^2} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

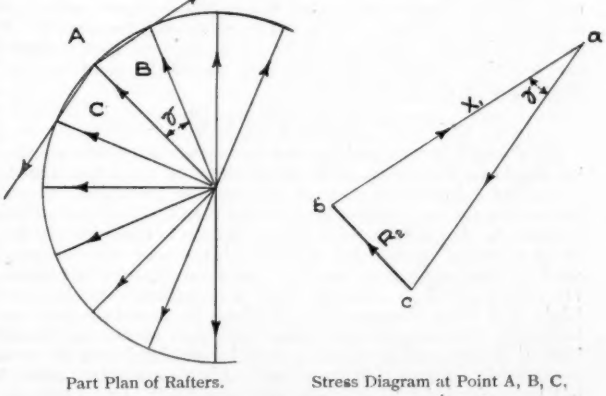
It is the purpose of the following investigation to determine to what extent the top curb is affected by the adoption of a trussed crown framing. When the holder is being inflated, the gas pressure acting upon the inside of the crown creates a state of tensile stress in the sheeting, and, owing to the discontinuity of curvature at the edge of the crown, a compressive load is set up in the top curb. This load forms the resistance which is necessary to maintain structural equilibrium.

Now the tensile strain in the crown sheeting and the compressive strain in the top curb tend to reduce the original curvature of the crown, with the result that the sheeting is lifted clear of the rafters, as shown diagrammatically by dotted line B in fig. 1.

It will therefore be readily observed that the trussing is not subject to any vertical load due to the weight of sheeting, snow, &c., after the holder is inflated. The only loads which it has to sustain are therefore those due to its own weight.

When the inner lift leaves the rest blocks, the crown framing tends to deflect, or sink towards the centre, as the supporting influence of the pier A is withdrawn. Now provided the main tension rods are so constructed that they receive only a small initial tension load when the holder is at rest, the deflection of the framing is resisted by a thrust set up in the main rafters. The top curb, being in a state of compressive stress, is reduced slightly in diameter, in accordance with Young's Modulus, and the effect of this on the framing is to increase the thrust in the rafters and decrease the tension in the main tie-rods. Some resistance is also offered by the purlin rings, but this is so small that for practical purposes it may be neglected.

Now the thrust in the rafters is transmitted to the top curb and sets up a state of tensile stress in directions which are tangential to the perimeter of the curb. The resulting tension in the curb may be found from an analysis of the stress diagram as shown in fig. 2.



Part Plan of Rafters. Stress Diagram at Point A, B, C.

Fig. 2.

Let R_2 = the horizontal component of the thrust in each rafter,
and X_1 = the tensional resistance set up in the top curb.
Then the horizontal thrust (R_2) may be found as follows:
Let w_1, w_2, w_3, *and* w_4, &c., represent the panel loads due to the weight of the rafter, purlins, and trussing at points 1, 2, 3, 4, &c., along each rafter—see fig. 3.

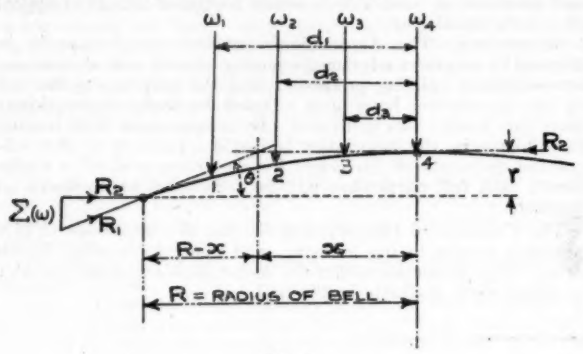


Fig. 3.

The distance (x) from the centre of gravity of the loads w_1, w_2, w_3, and w_4 to the centre of the crown will be—

$$x = \frac{w_1d_1 + w_2d_2 + w_3d_3}{w_1 + w_2 + w_3 + w_4} \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

Then the angle of inclination of the reaction R_1 to the horizontal is found from—

$$\tan \theta = \frac{r}{R - x} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

where r = rise of crown and R = radius of the holder bell.
Therefore the reaction R_1 =

$$\Sigma (w) \operatorname{cosec} \theta \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

and the horizontal component of this reaction is—

$$R_2 = \Sigma (w) \operatorname{cotan} \theta \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

Now the horizontal tensional resistance in the top curb (X_1) due to the thrust in the rafters (R_2) may be represented by the expression—

$$X_1 \text{ chord } \gamma = R_2 \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

where γ = the angle subtended by any two rafters.

Now equating (5) for the term (X_1), and substituting $\left(\frac{2\pi}{n}\right)$ for γ where n = the number of rafters, the following is obtained:

$$X_1 = \frac{R_2}{\text{chord } \left(\frac{2\pi}{n}\right)} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (6)$$

This result may be expressed sufficiently accurately for practical purposes as a simple linear equation as follows:

$$X_1 = 0{\cdot}159\, R_2 n \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (7)$$

Therefore, if (X) is the total compressive load in the top curb of a gasholder (see Cripps, "Guide Framing of Gasholders," p. 81), then the ultimate compressive load in the top curb, after taking into consideration the thrust effect of the trussed crown framing, will be—

$$X - X_1 \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (8)$$

In the case of large gasholders having trussed crowns, it will be found that, by taking the thrust effect of the trussing into consideration in the manner described, the compression in the top curb will be considerably reduced.

COKE OVEN MANAGERS' ASSOCIATION DINNER.

A delightful function was the annual dinner of the Coke Oven Managers' Association, which took place in the Hotel Great Central, London, on Thursday evening last, with Mr. R. Ray, B.Sc., A.I C., M.I.Chem.E., of Sheffield (the President), in the chair. There were a number of distinguished guests present, including Sir David Milne-Watson, LL.D., D.L. (the Governor of the Gas Light and Coke Company), Mr. John Terrace, M.Inst.C.E. (the President of The Institution of Gas Engineers), Prof. John W. Cobb, C.B.E., B.Sc., F I C. (Livesey Professor of Coal Gas and Fuel Industries, Pro-Vice-Chancellor of the University of Leeds, Hon. Member of The Institution of Gas Engineers, and Hon. Member of the Coke Oven Managers' Association), Sir Richard Threlfall, G.B.E., F.R.S., M.A. (Chairman of the Fuel Research Board), and Sir Alexander Walker, K.B.E. (a member of the National Fuel and Power Committee).

The toast of "The King" having been honoured at the call of the Chair, Mr. C. P. FINN, B.Sc., F.I.C., M.I.Chem.E. (Past-President of the Association), submitted "The City and Trades of London;" and this was replied to by Sir JOHN S. HINDLEY, Bart. (Alderman of the City of London).

Sir DAVID MILNE-WATSON said he rose with very great pleasure to propose the toast of "The Coke Oven Managers' Association." In these days, when there was so much moving in the world of industry and commerce, such an Association was of the greatest importance. There never was a time when things were changing so quickly; there never was a time when developments were more rapid. He was at the head of a Company with no less than thirteen works, and producing enormous quantities of gas and coke; and by the time they had got the undertaking in order at one end, the other end had become out-of-date. Almost every month new developments were coming along which required investigation; and the future was in the hands of technical bodies such as that Association. It was most important that every industry should have its technical organization, investigating the problems which faced them. He would say, speaking as a layman, and not as a technical man, that it was necessary to have a little patience with their technical associations. They were quite rightly entitled to make criticisms, which must be taken in good part, because the technical associations had, just as much as others, the interests of industry at heart.

AN EARLY ADVOCATE OF COKE OVENS.

He thought it was perhaps not altogether inappropriate that he should be there that night proposing this toast, because, by a curious coincidence, one of the earliest advocates of coke ovens was the very man who founded the Gas Light and Coke Company. He did not think it was known to many people that Winsor, before he founded the Gas Light and Coke Company, made a great attempt to found a coke oven industry in London. He endeavoured in 1804 to start a Company—the National Light and Heat Company—from which he promised great advantages. He issued a pamphlet in support of the use of coke instead of coal, and promised wonderful dividends and the most remarkable results. He failed with this "new patent coke;" but he succeeded with gas—as witnessed by the Gas Light and Coke Company, which he founded eight years later. This was a very interesting piece of history; and it offered a good reason why he should be proposing that toast.

RELATIONS OF THE TWO INDUSTRIES.

He was not going to say much; but he would just like to refer to the relations existing between the two industries. A great many people seemed to think they were antagonistic. Nothing was farther from the truth. They might in the past have misunderstood one another, and suggestions that the coke oven industry should take over the gas industry might naturally have caused resentment among the latter; but there was no real ground for anything of that kind. They were both aiming at the same object—namely, the best utilization of coal—and it was a great mistake to approach these matters with any degree of heat. There were advocates of coke ovens, of low-temperature systems, and of high-temperature processes. All these had their own place; and he thought that those who were engaged in these industries—whatever their outside friends might do and say—should approach their problems with cool heads. It had been suggested that they should follow what was being done in the Ruhr and other places; but those of them who understood the conditions in Germany and at home knew there was no analogy in these matters between the two. The coke oven industry and the gas industry were facing in the proper spirit the problems which lay before them. They had appointed a Joint Committee to investigate the question themselves; and during the last few months the National Fuel and Power Committee had presented a report in which they recommended the setting-up of a Committee to inquire into the whole question of coke oven gas supply in the Midlands. That Committee was on the point of being selected. It was most important that these questions should be investigated for the wellbeing of the industries which were so closely allied, and for the welfare of the community. The coke oven industry might feel quite certain, whatever was said in public, that the gas industry would give most careful consideration to any proposals which might be put before them, and that it would do its best to solve this important problem. Already the gas industry was taking very large quantities of gas from the coke ovens. There was no animosity, and their desire was to see that there should be fair play. A great part of the income of the gas industry came from coke; and naturally they did not

want to kill the good goose that laid the golden eggs. It was a great pleasure to him to propose this toast, because he knew the two industries were going to have closer relations in the future.

Goodwill Towards Our Friends in the Gas Industry.

Mr. Ray, on rising to respond, said they had with them, in Sir David Milne-Watson and Mr. John Terrace, the cream of the gas industry. It would have been noticed from the Technical Press during the past year or two that certain individuals, possibly in all good faith, had tried to raise a barrier between the gas industry and the coke oven industry. He wanted to say, there and then, that they would not succeed. By all the natural laws, these two industries should work side by side. So far from quarrelling over matters of detail, they should work together, first for the good of the community, and secondly in their own individual interests. It was quite true that there were points on which there was bound to be diversity of opinion. This was only natural; but he ventured to suggest that none of the points which so far had come before them, either in discussion or in the Press, was insurmountable. If the technologists of the two industries could only get together round a conference table, he felt quite satisfied that these few points would soon be settled, and that peace and goodwill would reign between the gas and the coking industries. He would therefore say to the members of the Association: "Let your watchword during the coming year be goodwill towards all men, and especially towards our friends in the gas industry." It was the duty of the coking technologists to advance the interests of their industry in every legitimate manner; but this did not prevent them from meeting the local representative of the gas industry, and discussing with him in all good fellowship points which might arise in their respective areas. By so doing, they would help to forward the interests of the gas industry—and by this he meant the gas produced both by the gas industry and the coking industry, a commodity which, as all of them knew, was a necessity in the modern household, and which he felt sure was going to make great headway in industrial circles in the future.

An Encouraging Address.

One of the most encouraging addresses he had heard for many a day was that delivered by their chief guest of the evening (Sir David Milne-Watson), at a luncheon which his Company gave to the members of the World Power Conference some few weeks ago. In this Sir David stated that the Gas Light and Coke Company were on the point of considering the establishment of a vast coke oven battery for the supply of gas to the City of London. Some people expressed the opinion that the coking industry was dead. He would suggest to them that this address of Sir David was a guarantee to them that the coking industry was only now beginning to live.

Modern Installations of Coke Ovens.

Turning to another matter, he was facing that night a certain number of gentlemen who, in days gone by, had not altogether seen eye to eye with him in the policy he had preached during the last two years. He would like to say that, although this had been so, the spirit of animosity had been absolutely absent. There had been no bad feeling; there had been only disagreement. He would suggest that no policy was worth advocating unless one got constructive criticism. He stood before them now, and said frankly that his views were the same as they were two years ago, with very slight modifications. He thought at that time that he might be wrong; but now he was satisfied that he was absolutely right. What was happening to-day in this country? In the last two years they had seen the beginnings of what would be, when they were completed, the most modern installations of coke ovens to be found in the country—more modern in many respects than those which many of them saw twelve months ago when they were visiting the Continent. Even the doubters were beginning to wonder, because, as many of them were aware, there were schemes in plenty on paper or projected stock. Therefore he felt that his policy had been vindicated. It was up to them all to see that the owners of dead coke oven plants were brought into line. Those who did not modernize would have to go by the board.

National Fuel and Power Committee.

Reference had been made by Sir David to the findings of the National Fuel and Power Committee. The evidence presented by the representatives of that Association before the Committee was not only favourably received, but had been acted upon. They had all read the report, and had learned that the Government had agreed to advance the sum of £10,000 for the further investigation of the possibility of developing a gas grid in a definite area. He would suggest that this decision had been come to largely as the result of the evidence given by the representatives of their Association, and that therefore they had had a very considerable hand in at last putting into action something which they believed was necessary. He was not at all sure that there was a very big increase possible in the quantity of gas which would be consumed from the domestic standpoint, but he was a great believer in the future of gas, purified or unpurified, for industry, and the sooner certain industrialists realized the inefficiency of their producer plants, and bought gas, whether made in gas-works or coke ovens, at a reasonable figure, the better it would be for them. He felt that the inquiry which was about to commence would result in nothing but success for the coking industry, combined with their friends of the gas industry. They must work together for the common benefit. The coke oven industry must take its place by the side of the gas industry, and work on equal terms with them. The industrial position in this country was entirely different from that in certain parts of the Continent and in America. The suggestion that no coke oven gas should go beyond the confines of the steel works was all very well; but in this country there were isolated coke oven plants situated all over the place, and so long as this state of affairs existed the gas should be utilized to the best advantage.

Mr. G. E. Herden, M.I.Chem.E. (Immediate Past-President), had entrusted to him the toast of "Kindred Societies and Allied Industries," and spoke of the value of interchange of opinions.

Mr. John Terrace, who replied, remarked that he had no intention of touching upon the thorny subject of coke oven gas for the gas industry. The two industries were, of course, closely connected, inasmuch as both were interested in the carbonization of coal. The Institution of Gas Engineers watched closely all work that was being done on the technical side, and greatly appreciated the opportunities they had had of recent years of meeting in joint conference members of allied industries, which had enabled them to get to know each other very much better.

Sir Richard Threlfall, who also responded, referred to what he said were considered to be the duties of the Fuel Research Board, of which he is Chairman. He commended to research workers the Biblical quotation: "Forgetting those things that lie behind, and pressing forward to those things that lie before."

Mr. W. E. Mordecai, B.Sc., A.M.I.Chem.E. (Hon. Secretary of the Northern Section of the Coke Oven Managers' Association), submitting "The Universities," said that Leeds University and Prof. Cobb had always been an incentive to coke oven managers. The great need to-day was for research into coke oven engineering. He looked forward with confidence to increased financial support for the universities, both from the State and from industry.

Prof. Henry Louis, M.A., D.Sc., A.R.S.M., F.I.C. (President of the Institution of Mining Engineers and an Hon. Member of the Coke Oven Managers' Association), in the course of his response, drew attention to the work being done by the universities in the direction of research. The universities and the coke oven industry must, he said, work hand in hand, if the problems of the proper utilization of coal were to be solved.

University Departments of Fuel.

Prof. J. W. Cobb, who also replied, said that the excellent work done by the Association had only extended over about ten years, and in a sense was only just beginning. The same might be said as regarded the specialized study of fuel at the universities. If he had any special claim to speak for the universities in this connection, it was because he happened to hold a Chair at the University of Leeds, which was a pioneer among our universities in establishing a Department of Fuel. That, however, only dated back a little over twenty years; and it was difficult to realize now how great an innovation the establishing of that Department in the University was at that time. It was now taken for granted as a fit and proper thing, but it was not so regarded at the time when Prof. Smithells and a few others established the Fuel Department at Leeds, with Prof. Bone as the first holder of the Chair. It was, moreover, interesting to note that the stability of that first Fuel Department was guaranteed and established by close association with a professional organization. He referred to The Institution of Gas Engineers and the gas industry, who endowed the Livesey Chair. Such association between the universities and the various organizations of the fuel industry could already claim to have been productive. The universities specially occupied with fuel questions in this country were not all treading the same ground. If one considered the work contributed by Leeds, London, and Sheffield (which he placed deliberately in alphabetical order), it was plain that each of them had its characteristic methods and subject-matter. The work of Prof. Bone on high-pressure phenomena, and that of Prof. Wheeler on the transmission of flame, the constitution of coal, and subjects bound up with these, compelled the admiration and respect of both the academic and industrial communities; and the work of all these Departments of Fuel was directed in one way or another to secure that efficiency and economy in the utilization of our coal resources which was perhaps the greatest industrial problem of our time. All at the universities were, however, fully conscious that their work is only the sowing of the seed, and that the quality and quantity of the harvest depended upon what was done with it by those in the industries. It is their co-operation which would make progress possible. The universities could only get the right type of man, devoting himself to the service of the fuel industries, and training for it, if he knew before making that decision that his

professional prospects were such as to justify his entering this new profession of Fuel Technology.

Co-Operation Accomplished and Needed.

It was not the universities, but the industries who could provide that incentive. Co-operation with coke oven managers had its value at every stage in the training of students. The opportunity to spend some time in the vacation on a plant was useful, partly for what was actually learned there, and partly as introducing a student to a works atmosphere. Co-operation of the universities is being already effected partly through Research Committees, in which industrial and university representatives worked together in connection with coke, gas, benzole, and refractory materials, and partly by individual help, such as he had received recently from Mr. Middleton, who had provided him with silica material drawn at different stages of the burning from works kilns, in order that the changes occurring during the burning on the large scale could be studied. But a more subtle and less easy form of co-operation was essential, if the work of the universities was to have its best results. He believed there was some danger that they might not be going as far as they could go, and as rapidly as they ought to go, because research results were not given full utilization in practice. It is there he thought the closest possible bond should be made between the universities and associations like their own, so that research work would not only be carried out, but would be applied to the full by the personnel of an industry permeated with the scientific spirit. He had spoke of the debt which the universities owed to the industrialists for their help. They had another debt which he would like gratefully to acknowledge—to the assistance which, in his experience, was rendered so ungrudgingly and effectively by the Fuel Research Board, a help which was enabling many things to go forward that would otherwise stand still. In so backing up the work of the universities, the Fuel Research Board was making one of its most valuable contributions to the national good.

The toast of "Our Guests" was in the hands of Mr. J. B. Deakin (Member of the Committee of the Southern Section of the Association).

COKE OVEN MANAGERS AT FULHAM AND BECKTON.

The Carbonizing Entente.

On Friday last the Coke Oven Managers' Association visited the Fulham and the Beckton Works of the Gas Light and Coke Company; and the event may be looked upon as auspicious, in view of the big strides which have been made this year towards mutual help and co-operation between the two great carbonizing industries, and in view of their joint interest in the forthcoming Government inquiry into the possibilities of area gas supply. The further significance attaches to Beckton that, should the Directors of the Gas Light and Coke Company decide to erect coke ovens on the scale indicated by the Governor in his recent speech at the World Power Conference banquet, it would be at Beckton that they would be installed.

The Fulham Works were visited in the morning and Beckton in the afternoon; but as these stations are well known to the majority of our readers, we shall content ourselves with a reference to important remarks made at the luncheon to which the large party sat down at Beckton.

Sir David Milne-Watson, proposing the health of the Coke Oven Managers' Association, coupled with the name of their President, Mr. Robert Ray, remarked that it was a special pleasure to entertain representatives of their sister industry, and to show their works to those whom they regarded as experts and connoisseurs, who would readily appreciate what they saw. The visitors were also particularly welcome because so much had been said about unfriendliness between the industries. He (Sir David) would say that they had been, and would always continue to be, friendly. The gas industry were not even jealous about the rating relief accorded the coke oven industry—after all, it was not their fault. [Laughter.] After a reference to the Joint Advisory Committee set up by the industries, and to his part in the work of the National Fuel and Power Committee, Sir David stated that if the gas industry was to oblige the coke oven industry in the matter of gas, then the coke oven industry must oblige the gas industry in the matter of coke.

The Forces against Them.

The two industries could well arrange matters so that they could carry on without detriment to one another; but forces were working against them, as witness the following extract from "The Times" of that day:

> He particularly wished to emphasize the desirability of extending the use of electricity in this country. They ought to be able to look to the captains of industry and the municipalities to extend the use of electricity in their businesses or in their municipal areas. But what they wanted to bring home—and it was very important to the women of the country—was the immense saving of labour which the use of electricity in the home must bring about. He was a little disappointed that in so many of the new houses being built electricity was used for lighting only, and houses were not wired for the use of vacuum cleaners, cooking, irons, and other apparatus which ought to be used. If this oversight continued it would mean that the cost to the householders would be enormously increased when they awakened to the advisability of using electricity for these purposes.

Now, these remarks were not made by the director of an electricity company at an annual meeting, or by an Electricity Commissioner. They were in a speech by the Minister of Transport at the opening of a bridge. He (Sir David) wished to protest against such remarks with all the emphasis in his power. The gas industry did not object to competition or to the boosting of an industry by those directly concerned with it; but they must complain when Ministers of the Crown boosted one industry against another. It was not fair play that the Government should take sides in such a matter. The gas industry were on perfectly good terms with the electricity industry; but it was a different thing for the Minister of Transport to use his great position to advertise electricity. It was especially bad when one remembered that the gas and the coke oven industries were basic industries in a country which depended on coal. The cause of the two industries was a common cause—the carbonization of coal as efficiently as possible—and in extending their work they would be benefiting not only themselves, but the country at large.

Mr. Robert Ray, in reply, said he was particularly pleased to be there, in view of the fact that during the war he had worked only a few yards away—on the synthesis of ammonia. In days gone by, there had certainly been misunderstandings and acrimonious remarks in the public and the technical Press regarding coke oven gas; but the two industries had taken every opportunity to point out that no ill-feeling existed between them. As for the points which arose between the industries, the technicians were qualified to discuss them; but on one side they had the cream of the gas industry, and on the other side ordinary individuals. Matters should be settled by the representative bodies. Without wishing to raise a controversy, Mr. Ray pointed out that where coke oven gas was taken, a gas undertaking would in proportion cease to produce coke; so that no harm would be done. Regarding low-temperature carbonization, he confessed that he had not yet found a commercially successful system; but he was sure that it would come, and would work-in with both carbonizing industries. For instance, the fines and breeze from low-temperature carbonization could be blended with the high-volatile coal they used.

Research in the Gas Industry.

Mr. Ray had particularly noticed the assistance given to their research chemists by the Gas Light and Coke Company. In this respect the coke oven industry were far behind the gas industry, and from what they had seen they could well understand why such leaps and bounds were being made by the gas industry. He paid a tribute to the progress made by the Gas Light and Coke Company, as gauged by the annual increase needed by them in plant capacity. In conclusion, he joined in Sir David's protest against the boosting of electricity. The Government, he said, were not playing a white man's game.

Southern Association of Gas Engineers and Managers.—At the general meeting of the Association which will be held at the Hotel Cecil, Strand, W.C., on Wednesday, Nov. 14, Mr. W. W. Townsend, of Colchester, will read a paper entitled "Isolation or Fusion?—the Problem of the Small Works." Among other business at the meeting will be the presentation of certificates to successful candidates in the Higher Grade Examinations in Gas Engineering and Gas Supply of The Institution of Gas Engineers.

Society of Chemical Industry.—His Majesty the King has been pleased to grant his patronage to the annual general meeting of the Society of Chemical Industry, which is to be held in Manchester from July 8 to 13, 1929. It is anticipated that many influential people will accompany Dr. Little, the American President of the Society, on his visit to Manchester. Information can be obtained from the Hon. Local Secretary, Society of Chemical Industry, College of Technology, Manchester.

LOCAL PUBLICITY, WITH SPECIAL REFERENCE TO SHOWROOMS.

By HAROLD E. BLOOR, B.Sc., B.Eng., Engineer, Manager, and Secretary of the York Gas Company.

[A Paper before the British Commercial Gas Association at their Annual Conference in York, Oct. 22-24.]

When choosing a title for this paper, I was aware that the subject of local publicity had been dealt with by my friend Mr. T. P. Ridley at the Newcastle Conference so recently as 1926, and with that thoroughness and comprehensiveness and insight for which Mr. Ridley is justly famed. The subject seemed, however, to be of such importance as to justify further discussion at a national conference. My intention was to discuss local publicity in the sense of Press and other advertising in some detail, and to proceed to a consideration of showrooms as an essential feature of local publicity. As the work proceeded, I became convinced that so much ground could not be covered adequately within the compass of one paper; and I have to apologize for putting before you a contribution which might more correctly have been entitled "The Gas Industry and Showrooms."

The vast majority of orders for gas appliances are ultimately dealt with in showrooms, and they should, and probably do, originate more business than all other publicity methods in use to-day in the area of any progressive undertaking. There seems some ground for thinking that the policy of the gas industry as to the provision of showrooms, their number, style, and equipment, might usefully be reviewed in the light of present-day conditions; and I trust that the subject-matter of my paper may be found of interest and some practical value.

THE "B.C.G.A." AND SHOWROOMS.

The policy of the "B.C.G.A." itself as regards showrooms deserves consideration. There may at some time have been members who believed that the publicity achieved by the "B.C.G.A." was adequate for all needs, but the policy of the Association has always been clearly expressed and in opposition to such a view. The provision of suitable booklets, stereos, and letterpress for use in local advertisements, posters, showcards, and generally every requirement of the official responsible for local advertising, was from the first properly regarded as of vital importance; and this department has grown rapidly in turnover as the need for local effort to supplement national advertising has been increasingly realized by members.

In addition the Association assists members in the design and equipment of showrooms and the organization of fittings departments. For all these goods and services we are customers of the Association; and it is right and proper that the Association should itself advertise its wares to its own members, on precisely the same principles as those animating a gas undertaking relative to its consumers. "Publicity Hall," which has now become a feature of our meetings, is an example of such advertising. "Publicity Hall" is, indeed, a "Publicity Showroom" and a travelling showroom too. It may in truth be said to have anticipated the invention of the "Travelling Gas Showroom" for which we claim credit in York.

NEW IDEAS.

In an inspired phrase Mr. Ridley stated that "Local advertising brings the article nearer to the vision of the customer." I sincerely hope that every visitor to this conference will visit this truly "local" piece of advertising, and find time to inspect in detail the wares displayed.

May I also in passing venture to suggest that to look always for a constant outflow of new ideas originating from any one centre is to ask the impossible. Inflow must, indeed, equal outflow, or inspiration ceases; and from the immense, but dispersed, resources of our industry, there should be a constant flow of ideas and suggestions to headquarters for subsequent dissemination throughout the industry. Visitors will find the officials at "Publicity Hall" avid for constructive criticism, with minds wide open to any useful suggestion.

If, however, the Association has its travelling showroom, it also has its permanent showroom "at the Company's offices." This showroom deserves to be visited regularly by all members when in London, but the premises occupied at Grosvenor Gardens by the "B.C.G.A." and our other organizations unfortunately do not provide suitable space for such showrooms as are required to display, tastefully and in a convenient manner, the immense variety of goods which are or should be available for our inspection. Such showrooms as I have in mind would undoubtedly be regularly visited by all interested in gas publicity, and while serving as showrooms could advantageously provide that comfortable accommodation for visitors to the industry's headquarters which is so urgently required. I earnestly hope that at no distant date our pressing need for new premises will be met.

SHOWROOM COSTS.

In Mr. Ridley's paper he stated that his Company (admittedly the most advanced as regards local publicity) spent over six times the amount of the "B.C.G.A." subscription upon advertising, without including the cost of showrooms and staff. There is a great lesson for most of us in this statement, and incidentally it raises an interesting question. Should the costs (or some part of them) of showrooms and staff be regarded as true publicity costs, or should they be included in some other category? The question cannot be answered in a word, for the objects served by a showroom and its staff are many and various, and for that reason the analogy of a retail shop business does not help us.

In the case of a retail establishment running newspaper publicity, the division of "shop" and "advertising" expenses is fairly clear, except that the costly space, goods, and labour absorbed by window display would appear to be correctly regarded as employed purely for advertising, as is also some of the cost of internal display.

A gas showroom serves as a reception room for visitors of all kinds; as a place for providing information to customers and the reception of complaints, &c.; and in addition to selling appliances outright, deals with hire purchase, simple hire, and slot meter installations and appliances. It also generally has window space used for display, and internal fittings, decorations, and appliances intended to catch the eye and interest visitors with a view to business. Behind the visible showroom must also be stores and personnel required to furnish the room, to keep it clean, and to control its policy.

DO SHOWROOMS PAY?

To say to-day that a showroom must not be expected to show a balance-sheet profit is to utter a commonplace; and that view needs no advocacy here. Still the question remains "How and to what extent do showrooms (and publicity) pay?" At the outset it is apparent that inability to produce a balance-sheet or relate results to costs of showrooms and publicity is a serious disadvantage, if not an absolute bar, to arriving at any rational solution of such a problem. I must resist the temptation to attempt a solution, for even to indicate the salient points would occupy more space than I can devote to the subject, but to deal with one relatively simple question—the value of gas-consuming appliances sold and hired—my own analysis suggests that the direct cash value of the sale or hire of appliances may be of the order of the capital cost. To arrive at the figure for any undertaking involves an exhaustive analysis of accounts and of average consumption of gas in various appliances.

It is said that at the meeting of a large company engaged in the sale of a patent medicine, a shareholder asked how the directors knew that the £50,000 per annum spent on advertising paid. The answer was that they had no means of knowing, but that so long as the profits provided the money and an adequate margin for the shareholders they would continue to do it.

I feel that something more could be said in answer to such a question directed to our own industry, and hope that someone competent to undertake the task will attempt it, and let us have the result, which, even if inconclusive, would, I conceive, be of great value to the industry.

The thesis that every undertaking should have a showroom has no doubt now arrived at the status of a self-evident proposition to all the young people coming into the gas industry, and become a matter of faith to be accepted without independent thought. There is, however, room for much thought on this matter, as I hope to prove.

DISTRICT SHOWROOMS.

Now if an undertaking with 1000 consumers should have a showroom, how many should an undertaking with one million consumers have? Should it have one or one thousand—or some intermediate number? And does size make up for number?

INFLUENCE OF LOCAL CONDITIONS.

In an endeavour to prove the existence or non-existence of some generally accepted line of policy as to showroom provision, I ventured to obtain from 82 undertakings of from 10,600 to 1,250,000 consumers particulars of the number of consumers, area supplied, and number of showrooms. How widely local conditions and views and their mutual reactions and expression in action vary, is shown by the fact that, as between the extremes, the undertaking with 10,600 consumers has four showrooms (or 1 to 2650 consumers), while another undertaking with over 300,000 consumers has only two showrooms (or 1 to over 150,000 consumers).

The areas of supply of these two undertakings are approximately the same, and it is possible to say, with some likelihood of being right, that in the one case the area has at least four definite centres of population with separate individualities, and

that the other is substantially one area, reasonably homogeneous and customarily regarded as one entity.

The effect of local sentiment and habits of thought is very strong, and it is conceivable that if the personnel of the two managements had been changed over in youth, there would have been four showrooms in the one area and two in the other, as now. It is definitely inconceivable that should the sparsely populated area become filled up so as to hold 300,000 customers, the number of showrooms would be reduced to two, or be increased to 113.

The two cases quoted, being extremes, certainly cut across the real effects of local conditions, and cannot be accounted for along that line of thought; but in truth local conditions do profoundly influence the decision as to number of showrooms. I have in mind a city of 60,000 inhabitants in which all classes and the residents for miles around frequent the main street. Anyone staying for one month in that street would see nearly every adult in the district, and most of them many times. It is apparent that in such a case an adequate showroom in the right place would meet all needs according to any standard which could hope for general approval to-day.

No wise person would attempt without intimate knowledge of any area of supply to nominate the number of showrooms which might be profitably maintained, their size, and their character.

I have set out the data procurable from the information obtained by questionnaire so as to give somewhat of a bird's-eye view of the situation revealed.

Showrooms.	Undertakings.	No. of Consumers 1000's. 10/12	12/15	15/20	20/30	30/50	50/70	70/100	Maximum Area with One Showroom 72 Sq. Miles. Area per Showroom.
1	35	2	1	7	11	10	1	3	
		Consumers per Showroom.							
		Maximum.			Minimum.				Max.	Min.
									Sq. M.	Sq. M.
2	18	154,733			7,900				72	2
3	10	64,000			5,732				78	2·33
4/6	13	26,400			2,650				32	6·25
7/10	4	29,242			5,694				16	3·6
over 10	2	37,632			34,700				7·4	4·7

It is apparent that no lesson of general use can be drawn from figures showing so great a range of practice. The problem must thus be attacked without any assistance from statistics.

What is Expected of Showrooms?

What, then, do we expect of our showrooms, and what purpose do we desire them to serve? It is clear from the practice of all progressive showroom managers that they are intended by window display to attract the attention of passers-by, and if possible induce them to enter so that the salesman may perform his office.

The actual interior is in many cases exposed to external view as much as possible, with the same object. Inspectors and canvassers calling upon consumers invariably invite a visit to the showroom, and "Visit our Showrooms" rounds off many an advertisement.

Showrooms also provide facilities for supplying minor needs such as gas mantles, and for receiving complaints and sometimes for payment of gas accounts. It is a common device to arrange the counter for payment of accounts within the actual showroom, so that a larger number of persons may be impelled or compelled to submit to the "suggestion" of the display of appliances, or even to the persuasive powers of salesmen.

I hold the view that this latter device is founded on error, that little business results from it, and that in certain cases it may do harm. Its so general adoption, however, supports the contention that the value of a showroom is believed to depend on the number of those who visit it, but, I would add, in the capacity of well disposed inquirers.

Should a showroom staff be possessed of the idea that "every complaint provides an opportunity for making a friend," so much the better, for some of those who come to complain will remain to buy, or will come again or send a friend to buy.

In any case it boils down to the same thing; that we want visits of inquiry, and after that more visits. We wish, in fact, to have our customers within our showrooms in converse with our salesmen; and the entire effort, whether it be by Press advertisement, by invitation, or by appeal to the passing eye, is directed to produce those thrilling moments when ardent salesman meets receptive customer.

Visits to Showrooms.

No one will deny that an important change has occurred during recent years as regards the frequency of visits from certain consumers, in that in so many cases electric lighting has been adopted, and the comparatively frequent and prolonged visits formerly made for the purpose of purchasing gas mantles, globes and shades, burners, &c., are no longer received from this class of consumer. Our own maintenance systems and the growing habit of paying bills by cheque, and of shopping or making complaints by telephone, similarly reduce the visits of a large number of possible large consumers; yet we urgently desire their presence in our showrooms, for we can hardly hope to secure their additional business by any other means.

I suggest that we practically never receive a casual visit from such people unless the showroom is so situated that they constantly pass the door on other business. We hope, of course, that those who by some means have established a definite need will pay a special visit.

In the large number of cases in which husband and wife would prefer to be together in choosing an appliance, the obstacle of distance is serious and in many cases insurmountable, and even for an individual the necessity of a very modest journey may almost indefinitely extend the time-lag between deciding to call and actually calling. We cannot afford such delays, which may be, and frequently are, fatal.

In York we are, I hope you will think justly, proud of our showrooms. The showrooms themselves, their location, and their personnel have been praised by many acute observers, and the general willingness of our customers to visit them is gratifying evidence that our public appreciate the attention they receive when they call upon us. Despite this, I became convinced that, as regards a large proportion of our consumers, our showrooms were practically never visited, and that, particularly as regards residents in outlying parishes, they were entirely ineffective.

The problem was how to reach such people; and the experiment of opening branch showrooms being out of the question for us, owing to the small number of consumers in most cases, the idea of a travelling showroom occurred to me.

Travelling Showroom.

With their customary readiness to try out a new idea, my Directors authorized the purchase of a travelling showroom, constructed on a telescopic principle and representing a joint design of myself and the makers, the Howcroft Carriage and Engineering Company, of West Hartlepool. The showroom, structurally successful at the first attempt, was tried out and put into use in October, 1927.

Since that date the travelling showroom has visited ten places, eight outside the city and two within. Visits ranged in duration from 9 to 36 days, and the business done is shown below. (In addition there was a visit to the York Gala, referred to later.)

Record of Travelling Showroom.

Sales.	Days.	Miles from Davygate.	£	s.	d.
1. Poppleton	12	4	13	8	5
2. Acomb	36	2	158	11	2
3. Bishopthorpe	9	3	7	11	5
4. New Earswick	22	2½	24	4	1
5. Haxby	10	4	22	11	3
6. Strensall	23	6	42	12	11
7. Huntington	26	3	32	17	9
8. Huntington Road, York	16	1¼	39	5	10
9. Burton Lane, York	24	1	84	18	4
10. Dunnington	15	6	50	13	7
			£474	14	9

Apparatus Sold and Hired.	1	2	3	4	5	6	7	8	9	10	Total.
Sold—											
Cookers	1	5	..	1	1	2	1	1	6	1	19
Fires	..	5	2	..	1	..	..	2	1	..	11
Water heaters	..	2	..	..	..	..	1	..	1	..	4
Boilers	4	2	..	..	2	4	3	2	2	4	23
Radiators	..	2	..	1	..	..	..	..	..	..	3
Irons	..	2	..	..	..	..	1	2	1	..	6
Fittings	6	19	3	4	6	2	2	4	11	28	85
Burners	..	71	5	9	21	17	13	36	35	64	271
Lamps	..	3	..	..	..	..	..	..	..	..	3
Hired—											
Cookers	..	6	..	1	..	2	1	1	1	4	16
Slot do.	..	4	..	..	4	1	1	3	1	26	40
Fires	..	1	3	2	..	..	..	..	..	2	8
Slot do.	6	5	2	1	5	1	2	..	2	4	28
Slot fittings	..	38	..	2	16	12	5	28	28	68	197
New meters	2	5	..	..	1	2	4	..	..	37	51
Coke orders	1	5	..	..	..	..	..	..	..	..	6
Burners put on maintenance	..	12	..	..	..	..	..	..	..	..	12
Rings sold (and grillers)	..	..	1	2	1	..	4	3	3	6	20

Total number of gas consuming appliances sold and hired = 463, value £868.

A canvass was run in conjunction with the visit of the showroom at each place visited, the canvasser being a highly expert fitter capable of giving advice and assistance on difficulties

experienced by consumers, and of dealing on the spot with any complaints.

The following table of work done, calls, and visitors and consumers in each area, indicates the scope of the work accomplished.

District.	Complaints.	Canvassers' Calls.	Visitors.	Consumers in Area.
1	55	128	197	101
2	411	625	931	1053
3	32	89	136	155
4	286	529	389	459
5	142	332	110	284
6	125	247	223	147
7	148	307	285	243
8	189	320	250	within city
9	252	484	286	not definable
10	..	..	126	..

No. 10 visit was to a village to which gas mains were being laid.

In addition to the above the showroom was shown at the York Flower Show and Gala for three days, and aroused such interest that to record the number of visitors soon became impossible. It provided the only occasion in my experience on which persons desiring to visit a gas showroom have been compelled to queue up and await their turn. Peculiar interest attaches to several facts which emerge from the data given. The areas visited are, except in two cases, detached and self-contained, and in these cases visits averaged nearly one per consumer.

Visits within the City.

After visiting seven outlying areas, I decided to try an experiment of critical importance, and accordingly the showroom visited two districts within the city and at a very short distance from the central showrooms. The results are shown in the tables, and I regard them as of the highest interest and importance to the industry. They show conclusively that an enormous amount of possible business is not touched by the central showrooms, even at a distance of one mile, and there is no evidence that any of the business done would have been done had the travelling showroom not been in existence. On the other hand, appreciable business has been done at the central showrooms following upon a visit to the travelling showroom.

Actual figures having been given, I trust I may be pardoned for mentioning that York has not been idle in the development of gas sales these fifty years or more, so that sensational figures of gas appliances sold and hired are impossible in this area. If the old broom has been well plied, the new broom can but *keep* clean—a satisfactory but not a striking performance.

Retaining Existing Business.

This leads me to an effect and object of publicity to which attention may usefully be drawn, and which consists in retaining business already existing. It has been stated on authority that if any business which has been built up upon advertising *plus* quality attempts to rely on the latter alone, the business done at once falls away. Thus advertisements of the type "Drink X.'s Ale" are not solely or even mainly directed to inducing new, but are necessary to the retention of old, business. This despite the fact that every drinker may be entirely unaware that his judgment or actions are influenced in the slightest degree by advertisement, and would undoubtedly stoutly affirm that he drank X.'s ale because he liked it better than others.

This argument did not always apply to our industry so strongly as now, since our public has been subjected to publicity of a peculiarly effective type, and to which we have no means of replying in kind, and calculated to support the view that gas is a back number and that our national health and prosperity, our comfort and well being, will all be promoted if more electricity is used.

Electricity and Press Publicity.

Apart from the special force of such inferential condemnation of gas, coming as it does from politicians who must be presumed to be disinterested, and who certainly have no real desire to harm us, and have no idea of the effect their actions may have upon us, the mere cash value of the space devoted to our competitor for some years past, free of charge, in the Press, would make the annual income of the "B.C.G.A." look ridiculous. For the first time in our history we are faced with the necessity—urgent and overwhelming—of keeping ourselves before the public as an industry not moribund, but modern among the modern, and progressive among the progressive. This we know ourselves to be; but we are so conscious of the true facts that I feel we may not realize that a public exposed to such propaganda as I have referred to must form a wrong opinion, unless we make this impossible by our efficiency and enterprise.

Such an intention was definitely in view on my first suggestion of the travelling showroom; and there can be no reasonable doubt that it has achieved it in no small degree.

There is no public to-day for anything which is suspected of being behind the times, and every favourable comment on the enterprise and up-to-dateness of a gas undertaking is a nail in the coffin of the idea that gas is a declining and doomed industry.

Experience so far gained appears to justify the conclusion that occasional visits of a travelling showroom to small outlying villages and areas too small to render the provision of permanent premises thinkable will produce valuable results, even though the visits are of short duration. The attraction of a new idea and the interest always attaching to a travelling and intermittent display may have conspired to produce greater results on a first visit than would accrue on subsequent visits. Only one visit having so far been made to each place, experience has yet to be gained as to this; but I hope and believe that, as we shall in York require a full year to make one round, the business will be maintained, if not improved upon. My reason for this opinion is that large numbers of consumers paid visits and were keenly interested, though business did not immediately result. It may reasonably be hoped that prospects established on the first visit may be brought to book on subsequent ones. The play of many forces has to be reckoned with in this connection, and I hope at some later date to publish actual figures.

Results of visits to sites approximately one mile from the central showrooms, almost one mile apart and not in shopping areas, have some bearing upon the broader problem of the number and size of showrooms which undertakings might usefully provide. Our experience shows that the presence of the showroom close to the place of residence induces visits and secures business from persons who must frequently be shopping near the central showrooms, but who have failed to pay us a visit there.

The showroom also provides a centre for the maintenance canvass which we conduct, and full advantage can be taken of any interest aroused in the course of conversation, for matters can so easily be carried a stage further by a mutual visit to the showroom by the canvasser and his customer.

Room for More and Smaller Showrooms.

At this stage I am personally convinced that there is room in every large area of supply for many more, and smaller, showrooms than it has hitherto been usual to provide. I would put in a plea for a policy of decentralization on the basis of showrooms of a size and character suitable for a staff of one, two, or three persons according to circumstances, such as the concentration of population and the character of the neighbourhood.

Our field covers the whole community of whom the vast majority are people of moderate means and requirements. Such people are willing visitors where they are not overwhelmed by too magnificent premises, and their individuality is not swamped by the numbers of customers and attendants.

An adequate range of gas appliances of all kinds can be displayed in comparatively small area, and no extravagant furnishing or decoration is required to satisfy the taste of 95 p.ct. of our consumers.

Absolute cleanliness and courtesy are the sole indispensables; and they should be found in every gas showroom. Lest there should be any complacency among us on these points, I may mention that one of my staff, passing through a large town in another part of the country, on holiday, desired to inspect the showrooms—to find that they were closed for lunch. Apart from the absurdity of closing premises costing several thousands of pounds during the only period of the day when many consumers can find a half hour for shopping, I would ask you to consider the mentality of three officials who saw a visitor try various doors for access, without asking if he had special need of attention at that hour.

This leads me to mention the obvious fact that at bottom all our advertising and expenditure on showrooms and maintenance goes for nought unless we have courteous, keen, and efficient salesmen and competent fittings staffs.

The room for culture and taste, knowledge and keenness, in a gas salesman, is unlimited, and ambition only can provide the spur necessary to provide us with the men and women we need for our showrooms and canvassing staffs to-day. For my own part, I hold absolutely, and endeavour always to act according to, the theory that management is the co-ordination of all effort to the end that the business may prosper, and must therefore be dominated by the only viewpoint which is all-embracing—that of the salesman.

Discussion.

The President (Mr. Alfred Procter) said he was sure all would agree that they had listened to an extraordinarily interesting and informative paper from Mr. Bloor. It must have caused him much labour to set out his facts as he had done.

Mr. Ralph Halkett (General Manager of the Sheffield Gas Company) proposed a hearty vote of thanks to Mr. Bloor for his paper, which he remarked dealt with a subject in which everyone connected with the gas industry was deeply interested. As the President-Elect had mentioned the previous day, whereas at one time he had thought that the chief factor of the gas industry lay behind the gas-works walls, the proposition was to-day quite a difference one. It was now necessary to push forward and maintain the outside department at

the highest state of efficiency, in view of the keen competition which was encountered, not only from electricity, but also in the industrial centres from oil fuel and solid fuel as well.

A First-Class Showroom one of the Best Assets.

He felt sure that all present would be in agreement with Mr. Bloor that one of the best assets a gas undertaking could have was a first-class showroom. When he took up his duties at Sheffield, the Company had not a showroom in the heart of the city, and so he immediately busied himself with this matter. They had a lovely showroom at the offices, of which they could well be proud; but this did not suffice. He wanted to get into the heart of the city. Some five or six years ago they were fortunate enough to secure premises which were absolutely central; and he was pleased to be able to tell them that the sales to-day were 200 p.ct. up on what they were six years ago. As a matter of fact, so satisfied had they been with the results of their showroom policy that they had at the present moment six in different parts of the district; and they were doing excellently. Of course, if one had showrooms one must also have efficient service, and Mr. Bloor had dealt with this. One of the finest assets they could have was to give the consumers the best of service. They must have their men properly educated, and trained to deal with every complaint on the district; and it was a good idea to arrange that the gasfitters and some of the district inspectors should attend the classes now being carried on by the Education Committees. He sincerely hoped that everyone present would support the classes which had in the past year or two been formed, because it was absolutely essential that they should attain the highest state of efficiency.

Coke Oven Gas—The Way to Meet Competition.

He would go so far as to say he thought that within the next few years they would see great changes in the gas industry; and he was certain they would have to deal with gas distribution in exactly the same manner as the electricity people were doing to-day with their own product. It was up to the gas industry to see that they were not left behind, and did not allow their competitors to forestall them. The Sheffield district was in the heart of the coke oven industry; and if anyone said to him: "Mr. Halkett, which would you prefer, to carbonize your own coal or to take coke oven gas?" he would certainly reply: "I should prefer to carbonize my own coal." But circumstances would not permit this. They could not hide from themselves the fact that the coke oven gas was there, and it was only the gas industry who should handle it. They realized in his district that they were up against a stiff proposition, and that unless they took this coke oven gas and utilized it to the best advantage, they would lose ground. It was in this respect that he thought the industry would see great changes within the next few years. Recently he went to Germany to see what they were doing there. He was almost convinced before he went, and he was now more than conveinced that they would have to take up coke oven gas—particularly those of them who were in the heart of the coke oven district. His own Company were at the present time taking 5¼ million c.ft. per day of coke oven gas. This week they were going to add another 3¼ million c.ft.; and in twelve months' time they would be taking a further 3¼ millions daily. He had advised his Board that they were bound to take it up, because they were in an industrial centre, and must supply cheap gas if they were to meet competition successfully. He could only see that means whereby they could do this.

The Travelling Showroom.

He felt that Mr. Bloor was to be congratulated upon his travelling showroom. There was no doubt that such a contrivance would prove a great asset to many gas undertakings, and particularly to those who were not in the happy position of possessing a permanent showroom. He could not, however, quite make up his mind as to whether in large cities a travelling showroom would prove satisfactory. He thought that he would prefer permanent showrooms, because distances were so far, and it was very handy for consumers to be able to go into showrooms in their own locality so as to see the appliances and choose what they liked, without having to go right into the heart of the city.

District Facilities.

Mr. F. W. Goodenough said he was very pleased to be allowed to second the vote of thanks to their friend Mr. Bloor for the highly interesting paper which he had given them, and which he had prepared during a time when he was exceedingly busy preparing for this conference. They much appreciated the work he had put into it. Upon whatever subject Mr. Bloor touched, he brought to bear original thought. He was never commonplace and ordinary, and there was much in his paper to cause them to ponder and ask themselves questions, which was about as valuable a quality as a paper could possess. There were one or two points which he would like to discuss with Mr. Bloor. All must agree that a showroom was a very necessary adjunct to other methods of publicity and to other parts of the service organization. The question of how many showrooms one should have Mr. Bloor had tried to explore statistically; but he found himself unable to arrive at any conclusion upon the figures which he could obtain. It seemed to him (Mr. Goodenough) that the conditions of each undertaking had to be considered by themselves in determining the number of showrooms that could be economically and effectively utilized. In the case of the Gas Light and Coke Company the Directors had adopted the policy of having a showroom—and by a showroom he meant a local centre which was an office, showroom, and depôt for the provision of stores and the operation of the fitters—in each part of the district which was a local entity. London was made up of various boroughs, urban and district councils, and in the case of his Company they even went out to rural district councils; and they were trying to establish a showroom centre in each part of London which had local civic life. They felt that consumers in say "District A" did not like to have to go into "District B" to find the Company's premises, even though the distance might not be very great; and the Company were finding very material benefit resulting from the provision of showrooms in each centre. He thought that the provision of service locally in a big city was worth consideration. He was not at all in agreement with Mr. Bloor in his doubts as to the advisability of having the cashier situated in the showroom. There was no doubt whatever that it was a very great advantage to get as many visitors into the showroom as possible, even if they came for the unpleasant purpose of parting with their money. If they arrived in a disagreeable mood, it was better that, in addition to the cashier, who might be a busy man with other people wanting to pay, there should be the showroom staff handy to take on the disagreeable consumer, and able to spend the time necessary to get the difficulties smoothed away and the feeling of soreness if possible removed. He would be very sorry to divorce the receipt of custom from the showroom in any undertaking with which he was connected.

Publicity that has Raised the Status of the Industry.

Proceeding to other points in the paper, Mr. Goodenough said he certainly did not think it was possible to draw up a balance-sheet to show whether or not a showroom paid. What were they going to take into account as the value of the business and of the goodwill that was being established year after year, which was going to lead to other business, as the satisfaction of one consumer led to business from another? With regard to showrooms, and to publicity of all kinds, one could only look at the general effect upon the progress of the undertaking and the industry, and upon the attitude of mind of the people at large towards the industry; and he did not hesitate to say that the result of the national and district publicity carried out through the "B.C.G.A.," and the local publicity which the members carried out themselves, had been in recent years to raise the status of the industry altogether from that of a disliked monopoly to that of a reasonably popular commercial enterprise. If they took the step of advertising their goods, they set up a standard of expectation on the part of the public, who knew that they were not afraid of criticism—that they had something to offer of which they were proud. In fact, the public thought quite differently of them if they came out into the open as a commercial enterprise, and did not remain hidden in their works as a monopoly. He believed that the publicity which had been of recent years accomplished by advertising and by showrooms would provide them with the necessary safeguard against the insidious publicity to which Mr. Bloor had referred—the politicians' publicity for their competitor, which—though at present as detrimental as it was highly improper—he personally did not feel was going to have any serious effect upon their industry in the future. He thought it was going to react in their favour as the public became disillusioned as to the wonderful promises that had lately been made to them. The only other point he desired to emphasize was the important one that their publicity, their service, and their work had to be directed more to the retaining of their present business than some of them had realized. The main object was not the securing of new business—although this was very important—but it was the retention and consolidation of the business which they already had. The satisfaction of the existing customers was the most important thing for every gas manager to have in his mind. ["Hear, hear."]

Showrooms in Keeping with the District.

Mention had been made by Mr. Bloor in his paper of there being no need for extravagant furnishing or decoration of showrooms. Well, he (Mr. Goodenough) did not know of any. He did not regard any of the showrooms with which he was acquainted, either in his own district or in others, as being extravagant in any respect. They had to bear in mind the character of the public with whom they were dealing. There were well-to-do customers to deal with, as well as the middle classes and the poorer people; and he was quite sure that showing gas appliances in worthy surroundings was never going to be a detriment to the getting of business from the less wealthy customers, and was a great advantage in securing business from those who could afford to spend money more freely. He endorsed what Mr. Bloor said about the prime need for efficient salesmen, in the showroom and on the district. Without keenness and capacity on the part of everyone connected with it, no business could possibly prosper.

Salesmanship.

Mr. Goodenough went on to recall the saying of a well-known French writer that no man was of any use until he got excited. Unless a man could get excited and enthusiastic about the business he was in, he had no business to be in it. Unless keenness was displayed all round, the showroom could be of no use. This meant that everybody had to be a keen salesman, from the Chairman downwards. Salesmanship was a question of the policy of the undertaking. Unless the policy was right, the service to the consumer was right, the quality was right, the pressure was right, the attention to complaints was right—unless everything was effective from start to finish—no showroom or district salesman could hold the business together. Efficient salesmanship was a function of the business as a whole—from the Chairman down to the porter who opened the door so that the consumer might come into the office or showroom.

Why Gas Must be Kept in the Public Eye.

Mr. Robert Watson (Doncaster) remarked that Mr. Bloor and his Directors had given them a very fine example of what a showroom could be. It was well equipped and tastefully adorned; and a customer must feel, upon entering a place like this, that he was going to get good service and good material—much in the same way that a person who had money to bank felt that he was going to put it in a proper place if he went into a good building erected in a prominent position. They must constantly bear in mind the necessity of keeping themselves before the public as a progressive and modern industry. There could be no question that gas was being more and more used in places unseen by the man in the street. Gas lighting to a considerable extent was still to be seen in places where it caught

the public eye; but it must not be forgotten that the greater proportion of the gas consumed to-day was being used in kitchens, sculleries, factories, &c., where the ordinary individual had no opportunity of seeing what it could do. It was therefore up to them to use every means of keeping gas in the public mind and before the public eye. ["Hear, hear."] He had never been so much struck by this fact as during his recent visit to the United States. While travelling there he met a well-educated man who, as Americans frequently did, asked him what his business was. On replying that he was a Gas Engineer, this man said, "Well, you have come to the wrong country. Gas is dead in the States; it is obsolete." He (Mr. Watson) could quite understand the reason for this remark from an individual outside the gas industry, because from the time he landed to the moment of leaving he found no evidence of gas, except what was provided by the holders in various parts of the country. This was a startling fact. Having previously provided himself with statistics, he was able to set forth the facts, and his American friend was astounded to find that the consumption of gas in New York had increased by 34 p.ct. in the last five years. What he had told them showed how necessary it was for them to take every opportunity, by means of showrooms, whether stationary or travelling, of showing the public what gas can do.

THE "A.G.A." PLAN.

The American Gas Association were a very powerful body; and they were taking steps in this direction. They have had to do so in order to keep their commodity to the front. The "A.G.A." split themselves up into committees; and for almost every phase of business they had a committee. Apparently they were engaged in making perpetual surveys of their position. By this means they ascertained when the opportunities for the use of gas in a given field were almost filled; and they also found out in which directions gas had been taken up in a smaller degree than should be the case. This enabled them to divide the points at which their energy could be most usefully expended. In conclusion, he urged all present to see that gas was not relegated altogether to places in which it would never be seen.

THE AUTHOR'S REPLY.

Mr. BLOOR, referring to the questions raised by Mr. Halkett about the use of coke-oven gas, remarked that if anyone could give him (Mr. Bloor) gas which would enable him to supply his consumers on better terms than he could do by making it himself, then he was buying this gas. ["Hear, hear."] What was needed was cheap and good gas, with better service for their consumers. Mr. Goodenough had only crossed swords with him on one point; he did not quite agree with him on the question of having the cashier in the showroom. As a matter of fact there was very little between them. He (Mr. Bloor) believed in having the accounts department quite near the showroom, but he did not like making people walk through the showroom and see the bait dangling before their eyes. He believed it should be so near that with the slightest inclination the consumer could go into the showroom. He was not convinced that some sort of balance-sheet, sufficient to be able to give a board of management or a committee some idea of whether a showroom was paying, was not possible. There must, of course, be all sorts of allowances, but he hoped someone would have a shot at it. The travelling showroom, of course, could not be a substitute for the permanent showroom. The point was that there were fringes all round a permanent showroom which could not be got at in any other way. In this case it served a useful purpose, but never in substitution for permanent showrooms where there should be permanent showrooms. With regard to the question of extravagance in showrooms, he believed that the gas industry, supplying, as it did, all classes of the community, in large areas must have premises of different style in different parts. What he had wished to do was to enter a plea for a very much larger number of branch showrooms; and these should be good, clean, adequately supplied, and well-served premises; but they need not be expensive. When using the word "extravagant," he did not intend to imply extravagance in any existing showroom. No doubt their competitors were now coming along and take some of their lighting; but it must not be forgotten that it was gas that made modern lighting possible. As to Mr. Watson's remarks, it was interesting to note that the consumption of gas per head in New York was half as much again as in old York; and in old York they thought they were not doing badly. New York was also consuming about 20 p.ct. more gas per head than London, so that the gentleman Mr. Watson had met in America was evidently greatly misinformed.

Mr. WATSON: It is unseen.

NEW GAS-WORKS OF THE BURNLEY CORPORATION.

Inauguration of the Oswald Street Plant.

Prior to his retirement in 1923, Mr Leather was asked by the Burnley Council to prepare a general outline scheme for a complete new gas-works on the Oswald Street site. This was done; and slight modifications having been made by Mr. Doig Gibb, M.Inst.C.E., Consulting Gas Engineer, the scheme was approved, and, in substance, is that which has been carried out. Detailed plans and estimates for the whole of the works, as now carried out, were prepared, and the work was supervised by the present Gas Engineer, Mr. J. Herbert Clegg, F.C.S. and the Borough Engineer. In July, 1925, the Council approved the detailed estimates involving an expenditure of £300,500 on the construction of the first unit. Work was commenced on Sept. 1, 1925, and satisfactory progress was made until the commencement of the industrial dispute of 1926, when deliveries of steelwork and other essentials virtually ceased for several months. Gas-making was commenced on Nov. 15, 1927, though at this time the manufacturing plant only was barely completed. In spite of the increase in standing charges entailed by heavy capital expenditure, the savings in manufacturing costs have enabled the price of gas to be reduced by 1d. per therm in December, 1927, and further by ½d. per therm in March of this year. The new works were inaugurated on Wednesday last by Sir RICHARD T. THRELFALL, G.B.E., F.R.S., Chairman of the Fuel Research Board.

The guests were received at the Town Hall last Wednesday by the Mayor (Councillor H. Lees) and Councillor W. Witham (Chairman of the Gas Committee), and were then conveyed to the gas-works in Oswald Street for the opening ceremony. In the exhauster house the chair was taken by the Mayor, and he was supported by Councillor Witham and Councillor Whitaker (Vice-Chairman of the Gas Committee), Sir Richard Threlfall, Mr. Arthur Henderson, M.P., and Mr. J. H. Clegg.

THE OPENING CEREMONY.

The MAYOR said that this was a proud day for the Gas Committee and those who had been associated in the carrying-out of the scheme. He remarked that during the latter part of Mr. Leather's management it had become evident that considerable extensions to the plant would have to be made to meet the demands for gas; and he outlined the proceedings which had ended in the building of the new works away from the old plant, which was worn out and would not be serviceable much longer. He went on to pay tributes to the work of Mr. Leather and Mr. Clegg for bringing to fruition such a splendid undertaking. He also complimented the Chairman and the Vice-Chairman of the Gas Committee on the valuable work they had done. Gas was first produced in the new plant in November, 1927; and they had the fullest satisfaction to-day, because the plant had more than justified the estimates of it.

Sir RICHARD THRELFALL wished the Corporation the greatest joy and prosperity in their new venture, and expressed the hope that it would bring not only honour to those engaged upon it, but comfort to the citizens who benefited by the gas produced thereby. Sir Richard then unveiled amid applause a tablet on the wall to commemorate the opening of the works.

After a tour of the works, the guests, who numbered over two hundred, were conveyed to the Empress Ballroom, where luncheon was served. The proceedings were presided over by the MAYOR.

LUNCHEON SPEECHES.

After the Loyal Toast had been honoured,

The MAYOR submitted the toast of "H.M. Fuel Research Board." In doing so, he referred to the men of eminence connected with it, and their labours, which mainly concentrated on the treatment of coal. He then presented to Sir Richard a beautiful silver salver as a memento of his visit to Burnley and of his services in opening the new works.

Sir RICHARD THRELFALL, in his response, said he was overwhelmed by their welcome and kindness. He went on to refer to the valuable work of the late Sir George Beilby in the establishment of the Fuel Research Station, and remarked that, though those who knew of his work were few, the day would come when his sacrifice and the brilliant results of that sacrifice would become known to all. He (Sir Richard) succeeded him because he had asked him to carry on the work as a sort of dying bequest. The Research Board were trying to be of assistance to all those who were interested in fuel. At the present time they had no fewer than 22 separate investigations authorized, and all except three or four were in process of being worked out. Many years ago they were set the question of whether there was or was not anything in low-temperature carbonization; and they worked at it very diligently, and spent somewhere about 15 p.ct. of their resources on the subject. They had got to such a stage that they had produced a process which was being investigated by another body at the direct invitation of the Government. It was too soon to say what the result would be, but he hoped that the Company concerned would begin work on it about the end of the year. Sir Richard, in giving everyone interested in fuel a cordial invitation to visit the station, remarked that it was their business to act in a sort of missionary spirit to anybody who showed a reasonable in-

SIR RICHARD THRELFALL UNVEILS THE TABLET.

Left to right: Rt. Hon. A. Henderson, M.P., the Mayor (Councillor Lees), the Mayoress, Sir Richard Threlfall, Councillor W. Witham (Chairman of the Burnley Gas Committee), Mr. J. H. Clegg (Gas Engineer), Councillor Whitaker (Vice-Chairman of the Gas Committee).

terest in the matter. Finally, he congratulated the Gas Committee on the works they had erected.

A Splendid Investment.

Mr. W. B. McLusky (Engineer and General Manager to the Halifax Gas Department) submitted the toast of "The Burnley Gas Department." He remarked that the Committee and the Engineer must feel proud that day, for they had supplied the town with a gas plant modern in every respect and at a capital outlay of only £300,000. If they wanted to sell their undertaking, there would be any amount of Lancashire people who would be proud to buy it, for it was one of the finest investments any corporation could have. For many years the Burnley Corporation had been the admiration of the gas industry. They had shown the industry how to spend wisely and yet make progress. The gas consumers of Burnley were having gas to-day at a little over 6d. per therm, after meeting interest, sinking fund, and income-tax charges. The profits in the last five years had been £67,000, and this sum was sufficient in itself to redeem the whole of the debt on the undertaking in a few years' time, independent of the statutory contribution to the sinking fund. The consumers appeared to appreciate the service the Department rendered to them, for during the last 7¼ years they had taken no fewer than 30,000 gas appliances. There they had an investment; for if the consumers would spend £121,000 on appliances, they would use them, and the Department would secure a steadily growing demand for gas. He paid a compliment to the work of Mr. Leather, under whom he had been a student, and said that for 63 years Burnley had been well served by Mr. Leather and his father; and now they had got a good man in Mr. Clegg, who had been selected by Mr. Leather. He felt sure that Mr. Clegg would carry on the traditions of the works.

Councillor W. F. Witham, replying, said that the verdict of Mr. McLusky, who was a member of a well-known gas family, showed that the Burnley Corporation should be well satisfied that they had adopted a proper policy in scrapping the old works and erecting the new. He had been Chairman of the Committee only three years. His predecessor had held the office for 25 years with marked success and ability; and he (Mr. Witham) regretted that he had not been spared to see his activities crowned. It was extraordinary that, prior to Mr. Clegg becoming the Engineer, they had only had four in 75 years. Two were named Robinson, father and son, and two were named Leather, and they also were father and son. He heartily welcomed Mr. Leather among them. The Gas Committee were persistently doing their part in helping to clear the atmosphere and improve the health of the town. Mr. McLusky had referred to the sale of gas appliances. They opened their showroom in 1922, and since then the consumption of gas in the town had gone up from 825 million c.ft. to 1000 millions per annum, in spite of unprecedented depression in the staple industry, a reduced population, and a considerable increase in the consumption of electricity. They had in Burnley a very enterprising and progressive Electricity Department, which entered into friendly rivalry with the Gas Department, and incidentally was doing its part in bringing sunshine into the lives and homes of the people. Mr. Witham went on to say that the venture they had launched that day was one of the best investments, if not the best, that Burnley had ever made. After providing for interest and sinking fund, and in spite of a big fall in the bye-products such as coke, they had during the last fifteen months—that was, since the new works had been in operation—reduced the price of gas to the consumer by £25,000 a year, which was equivalent to a 10d. rate; and the Gas Committee were at the present time hoping to reduce the price of gas by another halfpenny a therm, which would give the consumers an additional £8000 a year. In conclusion, Councillor Witham paid a tribute to the workmen who had been engaged in the erection of the works, and expressed gratitude that there had been no fatality or serious accident during the construction.

Councillor J. Sutcliffe, J.P., proposed "The Contractors," and response was made by Messrs. J. J. Baines and Phillips.

"The Visitors" was submitted by Alderman J. Sellers Kay.

Mr. R. H. Ginman (President of the Manchester District Institution of Gas Engineers), in reply, spoke of the gifted Burnley Engineer, who was a member of the Council of the Institution, and expressed the hope that as time went on he would achieve further honours. He hoped that when the Burnley Works were completed an opportunity would be given the whole of the Manchester District members of paying a visit to inspect them. Burnley was to be congratulated on its selling price of gas, which spoke volumes for the enterprise and initiative of all.

Lower Production Costs.

The last toast was that of "The Engineers," proposed by Councillor Witham.

Mr. Clegg, in reply, said that the works and plant had not been the result of the brains of any one man; and he went on to remark in glowing terms upon the manner in which all had pulled together and done their best to make the success which they saw that day. The new plant was not sufficiently large to supply the requirements of Burnley in the winter months, and so they would of necessity have to use the old works in Parker Lane this winter; and they expected to start operations there next week. The price of gas produced at the old works was over double that at the new works, and the old plant would not last more than another winter. The Council were, therefore, considering ways and means of getting an extra supply of gas, for he expected the consumption to increase substantially during the next ten years. The production of gas outside the town had never been considered before, but a Company had made them an offer of coke gas in bulk considerably cheaper than the Corporation could produce it. There was the further advantage that, instead of having to expend another £130,000, they would get off with the comparatively small sum of £60,000, of which £40,000 would be available if they wanted to extend. He did not say that they would never be able to produce gas cheaper than those people—he confidently predicted that they would—but as they could get coal cheaper than the Corporation could, they had an advantage, and the Company had a market for their metallurgical coke, which was their main product.

THE NEW OSWALD STREET GAS-WORKS.

The Oswald Street site has an area of twenty-nine acres, and has been laid out with a view to the construction of three complete units of gas-making plant, of which that now completed is the first. The site lies to the north of the town. It is bounded on the east side by the L.M.S. Accrington-Colne main line, and the Leeds and Liverpool Canal passes close to the northern boundary. The only access by road is via Oswald Street, which has been extended, as a part of the scheme, to the entrance gates.

Coal is brought from the siding by locomotive, and is weighed over a 36-ton weighbridge. Thence the tracks pass over an open reinforced concrete store, which consists of eight concrete bays holding approximately 1000 tons each, to the tippers. The tipping gear, supplied by Messrs. G. Waller & Son, of Stroud, is of the hydraulic ram type. The tippers are of the cradle type, and have 12-in. diameter rams. Two 12-ton wagons may be tipped simultaneously.

Retort House.

At the top of the retort house, the weight of the coal is again checked by a Lea "Cubimeter," after which a push-

plate conveyor carries it to the overhead hoppers. The breaker, elevator, weighing machine, and conveyor are all electrically driven, interconnecting switches preventing mishap in event of breakdown. These were supplied and erected by Messrs. Drakes, Ltd., of Halifax.

The combined charging and discharging machine was installed by Messrs. Drakes, Ltd. The retort settings, also the work of Messrs. Drakes, comprise fourteen beds of ten Ω-shaped retorts in one bench. Seventy are of high-grade fireclay, and seventy of siliceous material.

The doors and mouthpieces are of the usual type, but gas leaves the retort, from the charging end only, by means of "Congdon" scrubber pipes installed by Messrs. Aldridge & Ranken, Ltd., of Bath.

Waste-Heat Boiler, &c.

The chimney gases from the settings are passed through a Spencer-Bonecourt (Kirke patent) waste-heat boiler having a heating surface of 4560 sq. ft., and a working pressure of 200 lbs. with 150° superheat. The percentage of CO_2 in the gases is measured and recorded electrically at the boiler inlet.

On the discharging side, the hot coke is handled by a Gibson-Nichol machine, electrically operated. This machine receives the incandescent charge in a suspended steel tube (the internal dimensions of which are slightly larger than, but of the same contour as, the retort section), and tips it through openings provided in the retort house wall on to inclined chutes; or alternatively, if required, into the producers. The lids of these are lifted by a patent device on the machine, and a segmental ram passes through the cradle, forcing the fuel into the producer. Separate motors and control gears are provided for the travelling motion, the tube hoisting motion, and the ram respectively. This machine was supplied and erected by Messrs. Aldridge & Ranken, Ltd.

Coke Cooling—Sulzer Plant.

The method of dealing with the discharged hot coke is unique in this country. The process employed is that patented by Messrs. Sulzer Bros., of London and Switzerland, and has been adopted on the Continent in several instances for coke oven installations. In the Burnley plant slight modifications are introduced to gas-works requirement. Three tons of hot coke, the contents of six retorts, are collected in a skip, which rests on a detachable bogey. The skips are traversed along the track below the discharging chutes by means of a locomotive, which is of the "fireless" type, receiving its steam from an adjacent main through a flexible connection. At the end of the track is erected an electrical tower hoist 75 ft. high. When the skip containing its charge is in position, hoisting ropes raise the body vertically to the top of the hoist, when, by an automatic tipping arrangement, the incandescent mass is discharged into either of the "containers." These are part of the Sulzer plant proper (which is in duplicate), and consist of conical steel chambers lined with insulating material and fireclay brickwork. The coke enters at about 1000° C. by means of a swinging chute, and passes through a water-sealed lid; the chute moving into position and the lid opening automatically as the skip ascends the hoist.

On the descent of the empty skip, the lid closes and the hot contents are sealed in the chamber. Very slight combustion takes place between the coke and any entering air, and the resulting incombustible gases are drawn from the container at a point above the coke level to pass through a superheater chamber, and, in two travels, through the tubes of a smoke-tube boiler. Heat absorbed from the coke is given up to water in the boiler, and the gases return to the container at its base, after passing through baffle boxes for the removal of dust. The circulation is continuous and is maintained by electrically-driven fans. The speed of the fans may be varied to suit the amount of coke to be dealt with. Cooled coke is discharged by hand intermittently through an intermediate hopper into a concrete pit below ground-level in quantities of about three tons. Here it is caught by an automatic electrical skip hoist of one ton capacity, operating on an inclined track, and carried to the coke screens.

The Sulzer plant, which is entirely operated by one man per shift, is equipped with electrical pyrometers and other indicating devices showing the exact state of operations at any part of the plant. The plant is capable of cooling 120 tons per unit per day when the charges are evenly distributed over the period, or 96 tons per unit per day when charged during two eight-hour shifts only. The boilers produce a guaranteed yield of 840 lbs. of steam (from and at 212° Fahr.) per ton of coke charged. The superheat is 185° Fahr. and the working pressure 200 lbs. per sq. in. They are equipped with automatic pump controls and require no special attention. An indicator is shortly to be installed, which will record the composition of the circulated gases at any moment.

The advantages of this method of coke cooling are:

1. Large yield of steam, and, therefore, power from the residual heat in the coke, which would otherwise be lost.
2. Vastly improved quality of dry-cooled coke, which contains no moisture, and has an improved texture.
3. Saving of water and labour necessary for coke quenching.
4. Absence of corrosion of steelwork arising from fumes from wet-quenched coke.

The works, residual plant, and shops throughout are operated by power obtained from surplus heat, and no other fuel is burnt except when operating at very light summer loads, when the amount of coke dealt with is necessarily small.

In addition, the works are lighted and heated mainly from the same source. It is noteworthy that Burnley possesses the only gas-works where, at the present time, this economy is achieved.

Coke Screens, &c.

The coke-screening plant, erected by Messrs. Head, Wrightson, & Co., Ltd., of Stockton-on-Tees, comprises a set of six storage hoppers each holding 60 tons, and six subsidiary hoppers containing the various sizes of screened coke produced. These range from large coke to medium nuts, small nuts, smiths' breeze, and dust. The hoppers are fed by a reversible shuttle conveyor, and the small coke is sorted by two rotary screens, the whole being electrically operated. As the coke produced is dry, the whole plant, including storage, is housed under cover. The demand for graded coke having increased so considerably, three of the six broken-coke hoppers, and one of the screens, have been added during the past three months.

The exhausters are by Messrs. G. Waller & Son; and the exhauster house also contains two 100-kw. generating sets. The engines are by Messrs. Ashworth & Parker, of Bury.

Leaving the exhausters, the gas passes through a Livesey washer of standard type, by Messrs. R. Dempster & Sons, Ltd., of Elland, and thence through two rotary washer scrubbers erected by Messrs. W. C. Holmes & Co., Ltd., of Huddersfield.

The dry purification plant, installed by Messrs. Newton Chambers & Co., Ltd., of Thorncliffe, consists of six luteless boxes, 35 ft. square, each containing approximately 75 tons of oxide of iron.

After purification, the gas passes through a naphthalene washer.

For the usual type of works meter there has been installed one of the "Connersville" type, of 150,000 c.ft. per hour capacity. The contractors for the washer and meter were Messrs. W. C. Holmes & Co., Ltd.

Water Gas Plant.

A carburetted water gas plant has been installed in a building adjoining the exhauster house. This is to the design of Messrs. Travers & Clarke, Ltd., of London, and embodies many original features. Coke is supplied by conveyor from the screens, and the generator is gravity fed. The plant may be operated on the "back run" process, and manufactures either blue or carburetted gas. The carburettor and superheater are lined with firebrick, but contain no chequerwork. There are no hot-gas valves, these being avoided by the fitting of three wash-box inlets, each having a combined disc and water seal valve. The spent blast passes through a vertical waste-heat boiler which yields sufficient steam at 200 lbs. pressure for the operation of the plant when once the heats have been raised; and, in the manufacture of blue gas, the hot gas may also pass through the boiler tubes, thus conserving its surplus heat. The operating levers are interlocked in every position, and the whole plant is exceedingly simple to operate, and virtually foolproof. The amount of oil required per run is predetermined, and the supply cuts off automatically. An indicating and recording temperature system advises the operator of the exact condition of the plant. The water gas passes through a scrubber and condenser, and after measurement by a second "Connersville" meter of 80,000 c.ft. per hour capacity is admitted to the exhauster inlet through pilot valves.

Ammonia Plant.

The Wilton concentrated ammonia plant, of six tons per day capacity, now approaching completion, is supplied by the Chemical Engineering & Wilton's Patent Furnace Company, Ltd., of London, and takes the place of the originally proposed sulphate of ammonia plant.

The tar plant, which is under erection, is by Messrs. W. C. Holmes & Co., Ltd., and is constructed for continuous distillation. It combines both steam and gas stills of the Wikner and Hird type respectively. The capacity of the plant is 50 tons per diem.

The workshops block includes well-equipped mechanics', carpenters', electricians', and blacksmiths' shops, electrically operated and lighted. The heating in these buildings is by exhaust steam radiators. Commodious messrooms with cooking facilities and shower-baths are provided for day and shift workers. Other buildings include a chemical laboratory and office, coke and coal weigh offices with weighbridge, works offices, motor and steam wagon garages, loco shed, timber store, and gatekeeper's kiosk.

Though the buildings have been designed with due regard to their use and the economical employment of material, an attempt has been made to give the works some architectural character.

ROAD SURFACING MATERIALS.

Discussion before the Society of Chemical Industry.

At the Opening Meeting of the Session of the London Section of the Society of Chemical Industry—which was a joint meeting with the Chemical Engineering Group—held at the Royal Society of Arts on Monday, Oct. 1, Mr. W. J. A. Butterfield, Chairman of the Section, read a comprehensive and exhaustive paper dealing with road surfacing materials.

Referring to the early road tars, he pointed out that competition demonstrated clearly that refined or dehydrated coal tar afforded the most satisfactory and durable means, at a reasonable cost of maintaining existing road surfaces subject to motor and other traffic. The advances in the preparation of road tars, from the early days when crude gas tar was used, to the control by specification which now prevails were outlined, and the value of testings of consistency was emphasized. The new standard viscometer adopted by the British Road Tar Association was described; and the new instrument was stated to be advantageous in several respects.

Discussing the characteristics of good road tars, Mr. Butterfield pointed out that conformity with the current Road Board Specifications ensured to road authorities a tar which would afford a reasonably satisfactory coating at a moderately low cost. While the specifications could have been made more stringent, with a view to excluding those grades which were below the average of the whole, the supplies available under more stringent conditions would have been relatively limited, and prices would have been much higher. The great difficulty in drawing-up specifications for road tars lay in the fact that the coal tar produced in Great Britain varied greatly in character and composition, according to the nature of the coal carbonized and the type and manner of operating the carbonizing plant. The coal tar produced in one locality might differ fundamentally from that made elsewhere; and this accounted for the specific gravity of dehydrated tar ranging from about 1·07 to 1·30, and its consistency from that of a thin oil to that of putty. The intermediate grades were usually satisfactory road tars, but a considerable proportion of the output was unsuitable unless blended with tar or other bituminous product of opposite characteristics. Thus a tar produced locally might fail as a road tar, whereas it would be valuable to a distiller who could mix it with other tar.

There was a marked difference in the composition of different tars—*e.g.*, some contained little or no naphthalene, others as much as 10 p.ct.; some yielded little or no "free carbon," others as much as 30 p.ct., while the distillates from one tar might be almost free from phenols or tar acids, which might amount to as much as 10 p.ct. of another tar. The distillation test given in road tar specifications was probably the only practicable method of evaluating quickly the components and products; but it must be borne in mind that the heating to which tar was subjected in the distillation flask effected changes in its character and composition, and—as was well known—the original tar could not be reproduced by mixing the distillates with the residual pitch. These facts must not be overlooked when judging the characteristics of a road tar from the results of a distillation test. Especially, the character of a tar must not be assumed to be reflected in the character of the pitch obtained from it. When applied to a road surface, the tar underwent more or less rapid changes, due to the oxidation or polymerization of some of its components, and these changes were responsible for the drying or setting of the coating. Tar carried, or should carry, in itself a natural "vehicle" functioning like the drying oils and turpentine in paint; and, like paint, its effects and durability could not properly be judged by observation of it while "wet."

Broadly speaking, the best road tars would contain:

(1) Enough, but not too much, "free carbon" to function as the "filler" in asphalt.
(2) Not enough phenolic bodies to indicate any considerable content of water-soluble constituents or constituents very readily subject to polymerization and oxidation.
(3) A sufficiency of high boiling oils of a highly viscous character.
(4) Enough naphthalene initially present in the tar to indicate that a large proportion of its associated liquid hydrocarbon bodies were of a chemically stable nature, but not enough to indicate attendant destruction of other valuable hydrocarbons.
(5) Enough naphthalene to effect a sensible reduction in the consistency of the tar, and a consequent increase in consistency as the naphthalene volatilized, but not so much naphthalene that its rapid volatilization impaired the soundness of the coating. (The solution of naphthalene in viscous hydrocarbon oils lowered their viscosity.)

At the same time, in setting out this ideal for road tars, Mr. Butterfield explained that he did not wish to imply that excellent work had not been effected by the great bulk of the tar and tar preparations used on roads in recent years.

As regards asphalt-tar mixtures, it was pointed out that, while many road tars were improved by the addition of a proportion of asphaltic bitumen, there were some which were deteriorated thereby, especially if the bitumen was not of a truly asphaltic character. Discussing at some length the effect upon vegetation of dust from roads treated with various substances, including coal tar, experiments were referred to which indicated a slightly less effect in the case of tar; but some effect was noticed in every case. Concerning toxicity to fish of rain washings from tar-treated roads, Mr. Butterfield said that tar roads had frequently been condemned in the strongest possible language on flimsy evidence; and he was satisfied, after many years' study of the question, that it was impossible to draw from laboratory experiments any really trustworthy conclusion as to the danger to fish life of rain washings from any description of road surfacings, and more particularly of a bituminous surfacing which underwent the physical and chemical changes involved in the setting or drying of tar.

Advances in methods of surfacing roads outside urban areas seemed likely, concluded Mr. Butterfield, in the near future to depend primarily on the more careful study of preparing and using bituminous materials. There was wide scope for the better grading of road tars, for modification of the chemical composition and physical characteristics of coal tar from some sources with a view to rendering it more nearly asphaltic, and for the application of greater care and skill in the use of tar in order to secure the best results with it. There was, he said, wide scope for improvements in the methods of using asphaltic bitumen, with a view to avoiding irregularities of thickness of coating, slipperiness of surface, and stickiness in hot weather. These common defects of current methods of surfacing with asphaltic bitumen might be met by blending it with tar; and further work in this direction was likely to be fruitful. The preparation of emulsions of asphaltic bitumen and tar deserved more attention with a view to improving their stability, their content of bituminous material, and the inoffensiveness of the emulsifying agents. Advances in this direction were imminent; and he believed the use of emulsions of tar and asphaltic bitumen would greatly extend in consequence.

Discussion.

Dr. P. E. Spielmann, referring to a meeting of a Committee of the International Road Congress held in Paris last year, where it was decided to adopt the American definition of bitumen, said he found himself, as representing this country, in a majority of one in disapproving of the proposal, and preferred to have the matter threshed at home before agreeing. In the end they had adopted the proposal for the sake of international harmony; and though this demanded certain sacrifices, it also involved considerable sacrifice on the part of the French. The agreement to adopt the American definition was taken quietly by the asphaltic bitumen interests, and was received with decorous enthusiasm by the tar people. The only trouble was that what the Americans called bitumen was within a yard of what was termed asphaltic bitumen in this country. Therefore, though perhaps they had not got the best definition, they had the second best; and at any rate the nations understood what each other meant very much better than they did before. He urged the Ministry of Transport to approach the road development problem as a purely chemical-physical matter, and suggested that if 1 p.ct. of the Road Fund could be allocated to scientific research upon this problem, they would quickly make progress in the desired directions.

Mr. H. W. Lowe (Messrs. Dorman, Long, & Co., Ltd.; Bye-Product Department), commenting on free carbon in bitumen, said that according to a German publication, free carbon as it had been known hitherto did not exist in tar. This particular German work stated that it consisted of bituminous substances which were insoluble in benzole but were soluble in tar oils. This was a modification of the usual belief; and the same German worker reinforced his opinions by means of photo-micrographs which showed chunks of free carbon when a tar was diluted with benzole, but which were absolutely absent in undiluted tar. Incidentally, the same worker preferred to determine free carbon by acridine and pyridine. The same publication dealt with the mixing of tar and bitumen, and showed that, while it was possible to mix 10 or 15 p.ct. of bitumen with tar, when the amount of bitumen reached 20 p.ct. there was no mixture at all. There were simply two layers of the different material.

Mr. Gilbert F. Holmes observed that in the manufacture of paint from tar by a patent process, the tar was treated with a small percentage of a mineral acid to get separation of the free carbon. The result was a thick layer which went to the bottom, and an oily tar on the surface, which seemed the same as the original tar was except that it appeared to contain no free carbon, whereas the bottom layer seemed to contain about the same percentage of free carbon as did the original tar. On distillation, the oil layer still showed no free carbon; but if sufficient benzole was added, then a large

percentage of so-called free carbon was obtained. Apparently, therefore, the free carbon was soluble in heavy tar oils, but could be precipitated by a certain amount of benzole.

The Author's Reply.

Mr. Butterfield, replying to the discussion, said he did not think there was much chance of getting 1 p.ct. of the Road Fund for road research purposes. There might be a better chance if they suggested a penny in the pound. The free carbon question was an extremely important one, but personally he always wrote free carbon in inverted commas, in the hope that people would understand that he meant "free carbon" as determined in the manner of the specification with which he happened to be dealing. As to the German worker's views on mixtures of tar and bitumen, it all depended on the kind of tar being used. It was no use regarding tar as an entity. While it might be the case in the work of the German investigator that 20 p.ct. bitumen with tar did not mix at all, that was not true of all tars, because some of the best road work he had seen—and it was across the Irish Channel—was done with 40 p.ct. bitumen and 60 p.ct. tar.

THE AMERICAN ILLUMINATING ENGINEERING SOCIETY AND THE GAS INDUSTRY.

The Twenty-Second Annual Convention of the American Illuminating Engineering Society, under the presidency of Mr. Norman Macbeth, took place at Toronto on Sept. 17-20, and preceded by a few days the conference of the International Commission on Illumination at Saranac Inn, N.Y. The delegates to the latter, about seventy in all, had been invited to attend, and their acceptance permitted the gatherings to be designated, or at least considered, as an International Illumination Congress.

The attendance at the Toronto meetings was good, and the convention was pronounced to have been the largest held by the Society in connection with illumination matters. The Society made special efforts in view of the importance of the event, and were successful in providing an interesting programme of papers and reports, and in affording considerable pleasure to the whole company.

The foreign delegates, already cordially treated during the previous week's tour of the principal cities in the States, were heartily welcomed as temporary members to the meetings, and generously entertained at several evening functions.

It was stated that the convention of the Society provided the leading American forum for the discussion of illumination questions, and that the programme, composed of committee reports and individual papers, would reflect the latest practice, experience, and thought in that field. While planned primarily for the American members, special attention was given to topics of world-wide interest, and the foreign temporary members were invited to take part in the proceedings and to see, as it was expressed, an American Convention in action. The invitation was freely accepted, both in the contribution of papers and in participation in discussion.

At the opening meeting on Sept. 17, an official welcome was given on behalf of the Hon. Samuel McBride, the Mayor of Toronto, and this was followed by the presidential address, in which Mr. Macbeth dealt generally with the internal work and activities of the Society.

A report by Mr. F. E. Cady on the previous year's progress in illumination—a communication of 165 pages—dealt comprehensively with all phases of the subject, and as far as possible gave comparative and useful data of practice in other countries.

Subjects Covered.

The broad character of the programme of the conference is indicated by the subjects covered. These may be generalized as follows: Daylight and its utilization—biological effects, &c.; descriptions of artificial lighting schemes of various buildings; decorative lighting, both internal and external; advertising value of mobile colour lighting; survey of neon signs; lighting legislation in connection with factories and schools; automobile head lighting; wiring for buildings and testing specifications; street lighting effectiveness; glare and fundamental factors in vision; coloured photometric filters; transmission of light through liquids; "l'art moderne" in lighting practice; general lighting conceptions; and European lighting problems and activities.

Three British delegates took part in the programme of the Society. Mr. C. C. Paterson, the President of the International Commission on Illumination, gave during the course of the Monday evening an excellent lecture on "Light and Lighting," in which he dealt with the theory and utilization of light, and gave information as to the general scope and activities of the International Commission which was to meet the following week.

Dr. J. W. T. Walsh (the General Secretary of the same body) contributed a paper descriptive of the important illumination research work which was being conducted at the National Physical Laboratory at Teddington.

Mr. W. E. Bush (of the Electric Lamp Manufacturers' Association of Great Britain) also took part in the proceedings, and read a paper dealing with the developments in artificial lighting that had taken place during the last few years in Europe, and indicating possible future extensions. In this paper electric lighting alone was discussed, and the information given of publicity work done in various countries referred to electricity only. The propaganda of the E.L.M.A. to "stimulate a desire for electric light" in Great Britain were fully detailed. Mr. Bush made mention of the pleasing circumstance connected with the European situation that cordial relations existed between organizations and individuals engaged in the better lighting movement.

Among the American Committee reports was one on lighting legislation for factories, schools, and other buildings. The code of recommended illumination values originally adopted in 1915 was revised in 1918 and again in 1921, and had been adopted entirely, or with modifications, by eleven States in America. The Committee presented at the Toronto meeting a further revised code with a view to its approval and adoption as an American Engineering Standard. It was intended to apply to all factories, mills, offices, storage buildings, yards, power houses, and other industrial and mercantile establishments, and it detailed the recommended minimum illumination values which were considered desirable for various work carried on in such places.

Rules were also given in this report for the avoidance of glare and for the distribution and diffusion of light. The code given was as under.

Minimum Foot-Candles on the Space or at the Work.

(*a*) Roadways; yard thoroughfares	0·02
(*b*) Storage spaces; aisles and passageways in workrooms (excepting exits and passages leading thereto)	0·25
(*c*) Where discrimination of detail is not essential. Spaces such as hallways, stairways; exits, and passages leading thereto. Work such as handling material of a coarse nature; grinding clay products; rough sorting; coal and ash handling; foundry charging	0·5
(*d*) Where slight discrimination of detail is essential. Spaces such as stairways and passageways where there are exposed moving machines, hot pipes, or live electrical parts, also elevator cars, and landings; and work such as rough machining, rough assembling, rough bench work, rough forging, grain milling	1
(*e*) Where moderate discrimination of detail is essential. Work such as machining, assembly work, bench work, fine core making in foundries, cigarette rolling	2
(*f*) Where close discrimination of detail is essential. Work such as fine lathe work, pattern making, tool making, weaving or sewing light coloured silk or woollen textiles, office work, accounting, typewriting	4
(*g*) Where discrimination of minute detail is essential. Work such as drafting, weaving or sewing dark coloured material, very fine inspection or inspection of very dark goods	8

The above were minimum illumination values dictated from the view point of safety.

A second and lengthy table was also given furnishing minimum foot-candle values to be taken as present standards for groups of operations in various industries.

In a paper entitled "General Lighting Plus," Mr. M. Luckiesh pointed out that for some time modern artificial light had been used carelessly and without guidance by a lighting consciousness. As the latter dawned, general lighting methods were substituted for haphazard localized lighting which in a way was a practicable and commendable stride in lighting progress. Lighting intended for seeing any work in hand required the return of localized illumination—highly controlled in quality, quantity, and distribution—and the retention and improvement of the general lighting as such. These two systems were complementary and essential to each other in the lighting of most work, so that the conditions for seeing might be the best possible. Mr. Luckiesh discussed the advantages of superimposing highly controlled localized lighting upon good general lighting as the next great step in the progress of illumination for seeing purposes.

Decorative Lighting.

Considerable attention was paid at Toronto to the question of decorative lighting, the principles of which as developed in France were outlined in a lecture by M. H. Maisonneuve (of the Lighting Development Department of the Cie des Lampes, Paris).

M. Maisonneuve stated that architectural conceptions had undergone radical changes. An entirely new art of interior decoration differing completely from its predecessors had been born. The characteristic of this new art was to secure complete harmony of line and proportion; the lines always being

very simple and of geometrical form. Florid extravagances were banished, and complicated carvings deliberately given up. In contrast the greatest weight was attached to choice of material and of colour. The general evolution in the decorative arts necessarily carried with it the art of luminous design. The object was to reduce to a minimum all superlative decoration, and to achieve an effect of æsthetic lighting.

M. Maisonneuve referred also to the real attempts which were being made to incorporate lighting effects into the architecture and the interior decoration of buildings, and by description and lantern slides gave examples of the evolution of modern luminaries and their application to architectural design. He considered that, if efficiency was of first importance in the lighting of a work room, one should sacrifice it in some degree to æsthetic considerations in a decorative installation. In the art of lighting, efficiency and æsthetic considerations need, however, not necessarily be antagonistic.

In another sphere of decorative work, Miss Lillian E. Eddy (of the Edison Lamp Works of the G.E.C., Harrison, N.J.) gave an after-dinner address on "Lighting the Home for Special Occasions." The tables at this function had been embellished by examples of every conceivable form of illumination, such as lighted paper flowers, dolls, balloons, place cards, favours and novelties, suitable for luncheons, bridge parties, receptions, and other social functions.

The papers on the use of light in motion picture production and on mobile colour lighting were of some interest. The second paper emphasized the advertising value of mobile colour illumination, both in shop windows and also in the flood lighting of buildings, and suggested methods of expressing the cost of display illumination in terms of the number of prospective customers who see it. The public had to be educated to the fact that a definite percentage of the total cost of a window or building might be devoted advantageously to lighting. As mere intensity had ceased to be an unusual feature, they must be prepared to consume more wattage in order to make full use of colour.

Stress was laid on the need for a higher degree of refinement in light advertising than was the practice. It may be remarked incidentally that New York main streets more than justify this remark of the author.

Street Lighting.

An interesting paper was contributed by Mr. Preston S. Millar on "Brightness on Street Surface as an Element of Effectiveness in Street Lighting." He considered this an important factor. Since most street surfaces were more or less specular, the problem of securing satisfactory distribution of brightness was largely a matter of placement of light sources. Some characteristic brightness effects were illustrated and discussed by the author, who emphasized the importance of giving consideration to this aspect of the subject.

Discernment on the street at night was principally through perception of contrasts of brightness. Most objects did not offer extreme contrasts, and most street lighting was not of high intensity. Objects, therefore, were seen as silhouettes against a lighted background which was usually that of the street surface. Wherever visibility was dependent upon silhouetting, pavement brightness was of major importance.

Photometric Filters.

An interesting paper by Mr. E. C. Crittenden and Mr. A. H. Taylor on "An Interlaboratory Comparison of Coloured Photometric Filters" was also included. This paper reported results of measurements by seven laboratories on photometric colour filters ranging from dark red to purplish blue. Six laboratories made spectrophotometric measurements, from which integral transmissions for light corresponding to a colour temperature of 2680° K. were calculated by means of the standard values for visibility of radiation. Transmission factors so found were very consistent. Measurements made by flicker and by equality-of-brightness photometers gave average results not systematically different from those calculated from the spectral transmissions, but with both types of photometer there were discrepancies between laboratories. Different types of equality-of-brightness photometers also gave quite different results in measurements made by a single group of observers. In one laboratory the flicker photometer was found to undervalue reds and overrate blues slightly, while in two other laboratories these relative values were reversed. The net result of the project was to establish reliable values for sets of filters to be used in all these laboratories, as well as to show the practicability and propriety of using spectrophotometric measurements as a basis for standard values. The relative merits of flicker and equality-of-brightness photometers remain a subject for argument, but it was believed that the more systematic character of flicker results will make it possible to find an explanation for the small outstanding discrepancies in results obtained by this method.

Where Gas Comes In.

As will have been gathered, the papers as a whole provided nothing of direct interest to those concerned with gas lighting. Gas representatives, excepting those connected with the I.C.I., did not appear to be present, though it is believed the American Gas Association is officially connected with the Society. No allusion whatever was made at the meetings to gas illumination. References to the subject, however, appear in the "Year's Progress" report, presented but not discussed at the opening meeting. In this there is a statement that the output of gas for all purposes in the U.S.A. had reached "1700 billion" c.ft. during 1926, and the increase on the previous year was 10 p.ct. No suggestion is found that gas was used in that country for illumination purposes. The other and practically sole references to gas were in connection with gas lighting as found in European countries.

To some extent, the spirit of electrification was evident through the report, and one could not but feel that this was pronounced at the Toronto meetings generally. Every phase of lighting, whether of illumination values, of equipment, of decorative work, of methods to be adopted in educating the public, &c., was treated in paper and discussion as if electricity alone existed or could be considered.

No complaint, of course, could well be made that the American Illuminating Engineering Society appeared to have become an electrical organization, since gas representation was absent. The gas industry in the U.S.A. is perhaps not perturbed in view of the fact that gas lighting is not looked upon as an important outlet for its activities.

The use of gas for illumination is stated to be 8 to 10 p.ct. of the total output in the States. The expression in percentage may, however, be misleading, and the figure relatively low compared with the enormous and growing quantity of gas consumed for other purposes.

One could not but admire the breadth of the electrical outlook displayed at Toronto. No possible field where electricity could be used for illumination, decoration, or advertising seemed to have been overlooked; and the papers and discussions indicated how such usage could be made efficiently, and incidentally how the sale of current and lighting equipment could be increased.

Progress.

In attending the conference, a purely gas man seemed somewhat out of place. One of the foreign gas representatives said that he felt as Daniel may have felt among the lions, but remembered that the lions were powerless. He was consoled by the fact that the gas industry in the U.S.A., as elsewhere, was still making progress, and was looking forward to greater success.

The records of the American Gas Association furnish some very encouraging information, and the data available are properly claimed to indicate that the most salient characteristic of the manufactured gas industry in the U.S.A. is the steady and persistent expansion in all phases of that business from year to year. The growth in the sales of gas is remarkable, showing, to go no further back than the last five years, an increase of 34 p.ct.

1922	350,000,000	thousand c.ft.
1923	384,722,000	,, ,,
1924	405,200,000	,, ,,
1925	421,400,000	,, ,,
1926	455,631,000	,, ,,
1927	471,000,000	,, ,,

These figures refer to manufactured gas only.

The general tendency is for both decreased operating costs and lower gas prices, and the opinion is expressed that through aggressive merchandizing, based upon sound economic principles of rate making (that is, gas charging), the industry may diversify and expand its sales.

It is only right to state that the American Gas Association and its members are not content to sit still awaiting unsolicited gas custom, but use every opportunity for "aggressive merchandizing." The reports of various Committees of this body reveal considerable activity in surveying present and possible fields for gas usage.

The delegation of work of this kind appears to be thorough, judging from the number of reports presented at the recent meeting of the A.G.A. held at Alantic City. The "Survey" Committees dealt with all fields where gas consumption was possible. Thus there were, in addition to purely technical papers, reports on industrial gas usage; hotel and restaurant sales; house heating; gas-fired central heating equipment; water heating; domestic laundry, &c., equipment; architects' and builders' service; rate structure; and the like.

The Committee reports covered not only gas usage but in many cases appliances, with methods of use and efficiencies, suitable for definite purposes. They are probably the more complete in consequence of the co-operation in membership of the Association of Manufacturers as well as those directly concerned with the manufacture, distribution, and sale of gas.

The result of such work, backed by the local efforts of gas undertakings, appears to be reflected in the encouraging figures given above.

LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION.

Opening Meeting of the Session.

A Meeting of the Association—the first of the new session—was held at the Westminster Technical Institute, Vincent Square, S.W. 1, on Friday, Oct. 26; and at the outset the chair was occupied by Mr. LEONARD LACEY, B.Sc., the Retiring President.

The CHAIRMAN said that, before commencing the business of the meeting proper, he must refer to the death of a member of the Association, Mr. R. J. Snelling, of Chertsey, and to the loss the industry had sustained by the death of Mr. Arthur F. Bezant, the Editor of the "GAS JOURNAL."

As a mark of respect the members stood silently in their places.

THE NEW PRESIDENT.

Mr. LACEY went on to say that his next duty was the very pleasant one of introducing their new President, Mr. W. T. Kenshole, of the Lea Bridge District Gas Company. As a matter of fact, Mr. Kenshole needed no introduction; for long he had been one of the most energetic and enthusiastic members of the Council, and under his guidance the Association could look forward to a highly successful session.

Mr. Lacey then vacated the chair in favour of the new President.

PRESIDENTIAL ADDRESS

of W. T. KENSHOLE, of Lea Bridge.

Allow me to take this opportunity of expressing to you my sincere thanks for having elected me as your President for this session. We are justly proud of the work done in the past by our Association; and with the cordial support of all, I trust that the future will be as successful as the past has been.

It is not my intention, in this address, to describe to you in detail the plant and conditions operating at the works of the Lea Bridge District Gas Company, as later you will have the opportunity of making a personal inspection of the works, showrooms, and stove shops, when among other things of interest to be seen will be a new vertical retort installation in course of construction. I propose now to touch briefly on some of the most important points in connection with modern methods and conditions.

COAL.

A close examination of the supplies of coal delivered to gas-works reveals striking differences in the quality of consignments of the same coal from the same collieries. Often the consignments arriving are in a very wet condition; and should they happen to contain a high percentage of fines, may seriously interfere with the mechanical coal handling arrangements installed. This increases the cost of handling, even if no extra labour is employed, by reason of not being able to work the coaling plant at its normal capacity, by the extra wear and tear, and the extra power used.

The ash content is generally too high, taking up, as it does, valuable carbonizing space, reducing the output of gas, and thereby increasing the fuel and labour costs. The demand for cleaner coal by subjecting it to one of the many cleaning processes is rapidly gaining favour on account of the far-reaching economies and advantages to be obtained; and I believe the time is not far distant when coal will be sold on a calorific basis to the advantage of all concerned. Even now, coal is being sold under an ash content penalty clause in which the ash is guaranteed not to exceed a certain figure, but, should it do so, there is a corresponding drop in the price of the coal.

Also investigations into the question of sulphur content in the coal show that it is closely associated with the ash, and often it is found that coal of low ash content is also low in sulphur.

It has been shown that about 30 p.ct. of the inert matter in the coal can be removed by one of the many dry cleaning processes now used. Figures obtained from the commercial plants at present at work in England indicate that the operating costs of a cleaning plant (clean coal basis) average as follows: Total operating cost, including inside staff, power, maintenance, and repairs, approximately 2·25d. per ton.*

The importance of clean coal cannot be too strongly emphasized owing to its effect upon the production of a high-grade coke suitable for industrial and domestic purposes. It should be realized that the coke made in some of the modern coke oven plants closely resembles that made by gas-works, and is manufactured from fine slacks which have been cleaned, thereby producing a coke of lower ash content.

A large industrial user supplied by my Company regularly inquires about the ash content and calorific value of the coke we propose to deliver. This shows that some consumers are also alive to the necessity for a high-class clean fuel.

* World Power Conference—"The Dry Cleaning of Coal"—Appleyard.

Coke for domestic purposes, properly screened, washed, and graded, is rapidly finding a large market, owing to the growing popularity of slow combustion boilers. In face of the keen competition we are to meet from the coke ovens, it will probably become necessary and desirable to wash all nut coke sold for use in domestic coke boilers.

CARBONIZATION.

The science of the carbonization of coal has progressed rapidly since the termination of the war; and the Gas Regulation Act has undoubtedly been responsible for a great deal of this progress. It is generally accepted to-day that the largest possible charges should be used in horizontal work in order to obtain the highest throughput of coal, which is one of the chief means of reducing carbonizing costs. We have arrived at a stage where a commercial thermal efficiency of between 80 and 85 p.ct. is maintained when working with waste-heat boilers and taking into account the calorific value of all the bye-products.

The question confronting us now is, How can we improve upon these results? The trend of modern thought is towards speeding-up the process of carbonization, which involves possibly either using a retort material which will allow of working with a higher temperature head and giving a greater rate of heat transference to the charge, or catalytic agents which will assist in increasing the rate of evolution of the gas from the charge. The work now being carried out by the Research Sub-Committee of The Institution of Gas Engineers will be followed with keen interest, and the results of this work may well be the cause of alterations in the accepted practices of to-day.

THE PRESIDENT,

W. T. Kenshole, of the Lea Bridge District Gas Company.

Mr. Kenshole was educated at the County School in the Borough of Merthyr Tydfil, and at the West Ham Technical Institute, London. He was articled to his father, Mr. James E. Kenshole, Engineer and General Manager to the Merthyr Tydfil Gas Company, at the expiration of which period he was appointed Junior Assistant and Chemist. In May, 1916, he was appointed to a similar position with the Lea Bridge District Gas Company, and in October, 1925, was appointed Chief Assistant Engineer. Mr. Kenshole holds Honours Certificates of the City and Guilds of London Institute in Gas Engineering and Gas Supply.

An interesting experiment relative to the scurfing of vertical retorts was carried out at Lea Bridge some time ago. It consisted of reducing the number of working days from about 45, which is the usual, to 30 days. The immediate effect of this was that the retorts could be scurfed in 48 hours under the new conditions, as against about 72 hours previously; this, of course, is to be expected. Further and more important advantages were found in that the output of the house was increased by approximately 12 p.ct. with the same thermal yield per ton, but without any increase in the fuel in the producers.

It is the practice at Lea Bridge to examine all vertical retorts after being scurfed prior to charging them up, and to record the condition and any points of importance for future reference. The work of repairing any small holes that may develop while the retort is under fire presents considerable difficulties as compared with (say) similar repairs to horizontal or inclined retorts. The reason for this is that the holes, when they develop, are generally in the shoulders of the retorts, and are usually in either the first or second combustion chamber from the bottom, which means that the repairs have

to be carried out at a height of between 17 ft. 6 in. and 21 ft. 6 in. above ground-level. Though several methods have been tried, we cannot claim to have found the ideal method of repairing these under fire.

In 1922, Mr. D. C. Cross, in his Presidential Address to this Association, referred to what was then our latest experiment in carrying out these repairs when the bed was let down. Briefly, this consists of dropping the coke chamber, inserting a ladder into the retort from the bottom, and cutting out the damaged or worn part of the retort, which generally consists only of that portion opposite the lower one or two combustion chambers. Half of the retort to a height of 4 ft., if necessary, can then be cut away with safety, and when rebuilt with special bricks the other half can be cut away. It has been found inadvisable to attempt to cut out a small section around a hole, and patch it, owing to the difficulty of making the repair perfectly solid. By far the better method is to replace the whole section of the retort that was worn or damaged, always making the closing brick joint come midway in the combustion chamber floor tile, thereby effectually sealing the joint.

During the period that has elapsed since first trying this method, several beds have been reset; we have therefore had the opportunity of examining the retorts which have been repaired in the manner described. It is gratifying to be able to state that in every instance the work has been a complete success, and has considerably increased the life of the retort.

STEAM RAISING.

The subject of steam raising, both by using coke breeze and by recovering surplus heat, has received a good deal of attention during recent years, but it is doubtful whether boiler water chemistry has received the attention which it merits.

In 1922 a Humphreys & Glasgow waste-heat boiler was installed, coupled to two carburetted water gas sets. This boiler can be put to work with either of these sets at one time. Originally the boiler was let down for cleaning and washing out every six weeks, while every care was taken to see that the feed water was maintained at a hardness of about 2° with a total alkalinity of about 4 during the run. The approximate cost of shutting off the boiler, washing and cleaning out same, and putting to work again, amounts to about £8 for labour only; but a much more serious cost is the extra fuel used when working without the boiler.

It has been found by experience that, if the caustic soda content of the boiler water is allowed to exceed 55 grains per gallon and the concentration about 400 grains per gallon, there is a tendency for the boiler to prime. In order to increase the length of run between successive cleaning periods with safety, samples of water were taken daily from the boiler throughout the run. These were tested for alkalinity and concentration, and the "blow-down" was regulated to maintain the water to the figures previously stated within the practical limits of working.

A typical analysis of the water from the boiler is as follows:

	Grains per Gallon.
Silica and oxide of iron	0·17
Carbonate of lime	3·50
Hydrate of lime	3·18
Caustic soda	55·92
Sodium nitrate	3·02
,, sulphate	234·58
,, chloride	63·46
Total	363·83

The amount of water evaporated in the waste-heat boiler per 1000 c.ft. of gas made when it is connected with a Lancashire boiler is approximately 65 to 70 lbs. from and at 212° Fahr.

By working on the lines indicated, the duration of the run has been increased to fourteen weeks, and could be made longer if desired. The boiler is then shut down and washed out. Before putting same to work again, it is always subjected to a hydraulic test of 105 lbs. per sq. in., to see if the tubes are all tight. The boiler is in excellent condition; there being no signs of pitting or grooving having taken place. It is proposed, however, to fit ferrules in the top ends of the tubes, owing to the cutting action of the coke fliers. The boiler shows the excellent record of having worked 1917 days out of a possible 2465 days, equal to 77·7 p.ct.

DOMESTIC HEATING.

The field of heating for domestic purposes is one which calls for much skill and care in advising prospective purchasers as to the type of apparatus best suited for their use. There is still a considerable amount of prejudice against the use of gas fires by certain people, which only time and education will remove. This prejudice is undeserved, for it cannot be denied that the modern gas fire is constructed on sound scientific principles and is thoroughly hygienic in use if properly fitted.

A very damaging factor to the good name of the gas fire at the present time is the number of obsolete fires still in use which probably are not all that can be desired as far as efficiency and the complete withdrawal of the products of combustion are concerned. Every step should be taken to scrap these obsolete fires, even at a sacrifice.

It will be noticed from the following table that the actual cost of gaseous heating is not so much higher as to account for the enormous amount of heating still done by solid fuel. The figures given show the cost of heating a room measuring 20 ft. by 20 ft. by 15 ft., assuming 18,000 B.Th.U. are required per hour.

	Hourly Cost in Pence.
1. OPEN FIRE—House coal at 44s. per ton, 12,500 B.Th.U. per lb., with an efficiency of 20 p.ct.: $\frac{18,000}{12,500} \times \frac{100}{20} \times \frac{(44 \times 12)}{2240}$	1·70
2. SLOW COMBUSTION STOVE—Anthracite coal at 76s. per ton, 14,000 B.Th.U. per lb., with an efficiency of 60 p.ct.: $\frac{18,000}{14,000} \times \frac{100}{60} \times \frac{(76 \times 12)}{2240}$	0·87
3. GAS FIRE—Gas at 9d. per therm, and an efficiency of 75 p.ct.: $\frac{18,000}{100,000} \times \frac{100}{75} \times \frac{9}{1}$	2·16
4. GAS STEAM RADIATOR—Gas at 9d. per therm, and an efficiency of 90 p.ct.: $\frac{18,000}{100,000} \times \frac{100}{90} \times \frac{9}{1}$	1·80
5. GAS BOILER—Gas at 9d. per therm, and an efficiency of 80 p.ct.: $\frac{18,000}{100,000} \times \frac{100}{80} \times \frac{9}{1}$	2·02
6. ELECTRIC RADIATOR—Electricity, 3412 B.Th.U. per unit, costing 1½d., and an efficiency of 100 p.ct.: $\frac{18,000}{3,412} \times 1\frac{1}{2}$	7·90
7. CENTRAL HEATING USING COKE—Coke at 37s. per ton, 12,000 B.Th.U. per lb., and an efficiency of 60 p.ct.: $\frac{18,000}{12,000} \times \frac{100}{60} \times \frac{(37 \times 12)}{2240}$	0·49

When considering the comparative fuel costs for similar work, it is of the utmost importance to realize that the greater the degree of intermittency required, the more this operates in favour of gaseous and electric heating. This is on account of their adaptability to climatic conditions, enabling their use according to requirements, which is not so easily possible when using solid fuel; while where gas and electricity are used, the labour costs are very low and the maintenance charges are much lower than the upkeep of a central heating installation. The major part of the heat required in a modern household is of the intermittent kind, and it should be noted that the rate at which the heating is done by the gas fire is extremely high. As these two facts become more generally appreciated, so gaseous heating will claim an even greater proportion of this business.

The present has been described as the "Age of Science;" developments are every day becoming known, and the struggle for efficient working becomes one of keeping pace with discovery.

The position occupied by the juniors in our industry is rapidly becoming more important, one of the principal reasons being the increase in the multitudinous administrative duties which devolve upon chiefs and heads of departments. Extensive alterations in accepted ideas have taken place during the last ten years; and as a means of keeping abreast of the improvements and developments, it is necessary that various reports which appear from time to time in the Technical Press should be assiduously studied, and, with advantage, filed away for reference. Further, these meetings and discussions provide a valuable means for the interchange of information acquired on various works under widely differing conditions. I appeal to all members to take a more active part in our discussions, in order that the experiences gained may be more freely circulated.

Mr. F. S. LARKIN (Senior Vice-President), proposing a vote of thanks to Mr. Kenshole for his address, said it was typical, in the thoughtful survey of the progress of the industry, of what they would expect from their new President; and he advised all the members to study it carefully when it appeared in the Technical Press.

Mr. T. H. PRATER (Junior Vice-President) seconded the vote.

PRESENTATION TO MR. LEONARD LACEY.

The PRESIDENT observed that the next item on the agenda was one of a very pleasant nature—to present Mr. Lacey with a suitably inscribed silver salver as a token of esteem and as a small but tangible acknowledgment of his valuable services to the Association. Mr. Lacey had occupied the chair with dignity, and had added to the prestige of the Association. During his year of office the membership had not only increased in number, but, he thought it might be said, in quality —which, after all, was most important.

Mr. LACEY, returning thanks for the gift, said that when he took over the presidency of the Association he naturally had

misgivings; but he could console Mr. Kenshole that any fears he might have were unfounded, for the support of the members, and particularly of their Hon. Secretary, rendered the task of a President a most happy one. He (Mr. Lacey) thanked them all for their support during the 1927-28 session.

New Hon. Member.

The President, having offered the congratulations of the Association to Mr. R. Summerson (Luton) on gaining a First-Class Diploma (with distinction), and to Mr. E. H. Winch (Cambridge) on gaining a Second-Class Diploma, in the 1928 examinations of The Institution of Gas Engineers, said that the Association had elected Mr. George Winslow an Hon. Member. Mr. Winslow's services had been invaluable, and it was largely due to his help that the Association occupied such a high position to-day. [Applause.]

Finally, Mr. Kenshole extended the congratulations of the Association to Mr. Alfred Harrison on his appointment as Editor of the "Gas Journal," and to Mr. Norman S. Smith on his appointment as Assistant Editor. Both, he said, were well known to them all and had invariably helped the Association. On behalf of the Association, he also congratulated Mr. A. C. Slaughter on his appointment as Editor of the "Gas World."

THE RECONSTRUCTED GAS-WORKS AT DAWSHOLM.

"W-D" INTERMITTENT AND CONTINUOUS VERTICALS.

Opening Ceremony on Oct. 25.

In 1926 four benches of horizontal retorts, built thirty years ago, of a total capacity of 4 million c.ft. per day, were demolished at Dawsholm; and a Sub-Committee, consisting of Councillors Paterson (Convener), Walker (Sub-Convener), Gould, Kennedy, Mills, Munro, Renfrew, and Young, was appointed to obtain tenders for a scheme to use the site to the best advantage. A specification was prepared, and the Corporation advertised for tenders. In the specification the stipulation was made that coal smaller than 1-in. cube should be screened from the larger coal, and, after prescribed preparation, be carbonized in separate retorts.

After the various schemes submitted had been considered, and corresponding plants visited by some members of the Committee, a contract was placed with the Woodall-Duckham Company, in January, 1927. The plant selected is to carbonize 587 tons of coal, and to produce 9 million c.ft. of gas per day, of a calorific value of 475 B.Th.U. per c.ft. It consists of 44 continuous retorts, each to carbonize 9¼ tons per day; 48 intermittent or chamber retorts, each to carbonize 4¾ tons per day; and corresponding coal-handling plant.

Most Scottish gas coal yields a large quantity of "smalls" when broken. The coal does not cake in the retorts, and consequently the smalls produce coke breeze, which it is desired to eliminate. The smalls also slow up the carbonization, and detrimentally affect the quantity and quality of the gas produced. To obviate these undesirable factors, after the coal has been broken, the smalls will be screened out and treated separately.

The following process has been adopted: Railway trucks of coal will be brought in on the high-level railway to the rotary tipplers at the end of the coal store, and discharged into the receiving hoppers below the rails; from the hoppers the coal will be passed to grizzley screens, and coal which is small enough to be carbonized without further breaking will be screened out; the large coal will pass through the breakers, and be reduced to a workable size. The first coal removed and the newly-broken coal will contain smalls, and the whole of the coal will be passed over another grizzley, to screen out these smalls, which will be separately treated before carbonization. The screened coal will be deposited in feeding hoppers over the continuous vertical retorts.

The smalls will be dealt with in the intermittent plant. They are first of all washed. As the small washed coal is non-caking, and would form very small coke if carbonized by itself, caking slacks will be admixed.

The intermittent coke from the chamber retorts will be cooled in a Sulzer plant.

It is now proposed to describe some items of the plant in more detail.

Carbonizing Plant.

The "W-D" continuous vertical retorts are arranged in two benches, each containing twenty-two 103-in. retorts. (At Provan there are eight benches of twenty-four 78-in. retorts.) The retorts are set in such a way that any one may be controlled independently of the other. Each bench is heated by means of five independent step-grate producers, arranged in one battery at the side of the bench, on ground-floor level. The retort faces and combustion chambers are constructed of high-quality silica material for the full depth of the combustion chambers. In order to conserve heat, both the side walls of each bench and the top of each bench are insulated with special material.

The 48 "W-D" intermittent vertical chambers are arranged in two benches, each of 24 chambers. Each bench consists of four settings, each containing six chambers, one recuperator, and one producer. Each setting is absolutely separate from the next, so that any one may be heated up or cooled down without in any way affecting the adjoining settings. Retort faces and combustion chambers are made of high-quality silica material, to a depth of 14 ft. 4 in. The producers and recuperators are built for the full height of the settings; and the top and front walls of the settings are insulated to reduce heat losses to the minimum.

The combined plant, as stated, has a daily output of approximately 9 million c.ft. of gas.

This arrangement of carbonizing plant will give flexibility as regards output, selection of coals, and calorific value, and will ensure the manufacture of high-quality coke from the cleaned and blended coal.

Waste-Heat Boilers.

Three waste-heat boilers have been installed for utilizing the major portion of the heat contained in the waste gases after they leave the continuous vertical retort benches and before they are discharged to atmosphere. Each is large enough to deal with the waste gases from one bench, and one boiler is a stand-by. The boilers are 9 ft. 6 in. in diameter, of the horizontal fire-tube type; and, at a working pressure of 160 lbs. per sq. in., will each produce 14,000 lbs. of steam. The larger portion of the steam will be used for steaming the retorts, and the balance will be superheated and passed into the works mains.

Coke-handling from plant to storage will be practically automatic. For the continuous plant a ferro-concrete bunker of 550 tons capacity has been provided, which will contain the whole of a week-end make, and, as previously mentioned, the coke will be handled into it by plant which will automatically operate only when coke has to be handled. Similarly, coke from the intermittent retorts, after it is discharged from the Sulzer plant, will be automatically put into another ferro-concrete bunker of 300 tons capacity. A new feature of these two coke-storage plants is that the coke is stored in the condition in which it is received from the retorts, and afterwards graded direct into the railway trucks or carts for conveyance to the consumers, instead of grading into the bunkers.

Both coke plants are alike in principle. The bunkers have valley-shaped bottoms, in which are a number of apertures. At each aperture there is a rotary feeder to control the flow of coke from the bunker on to a band conveyor, which delivers into the rotary screen. The screen grades the coke into hoppers of about a railway-truck capacity each. The hoppers discharge into the railway trucks. Appliances are also provided to load carts.

To ensure that the pull on the retorts is correct and constant, governors of the butterfly-valve type are introduced in the foul-gas mains in the neighbouhood of the benches, two for each bench.

A series of recording instruments is also provided in the office, and connected electrically with various points of the plant, to enable the charge hand to see at a glance the quantity, pressure, and temperature of steam made, also the temperature of the waste-heat gases entering and leaving the waste-heat boilers. Other recording instruments, placed in convenient positions, will record the carbon dioxide and oxygen in the waste gases, the pull on the foul main, and the pull on the retorts.

Three rest-rooms are provided to which the men may adjourn for meals and rest between duties. One of these is for the men working at yard level, one for men on the intermittent plant, and one for men on the continuous plant and coke bunker. Each is provided with a gas cooker, hot and cold water, and lavatory accommodation, and may be heated by radiators.

Practically all the plant is operated by electric power supplied by the Corporation.

The whole of the work has been carried out by the various contractors to specifications prepared by the Gas Department, under the direction of Mr. J. W. McLusky, M.I.Mech.E., Engineer and General Manager of the Gas Department, and his Engineering Assistant, Mr. J. Fred Harrison, M.Inst.C.E.

The new carbonizing plant at the Dawsholm Works of the City of Glasgow Corporation Gas Department was formally

inaugurated on Thursday last. The guests who were invited to take part in an official inspection and luncheon were conveyed by motor omnibuses from the City Chambers to the works at Dawsholm, and on arriving there were welcomed by ex-Bailie James B. Paterson, J.P., Convener of the Gas Committee. The company included prominent men in the gas industry both in Scotland and in England.

Ex-Bailie James Paterson said that the Committee had received a number of apologies for absence, and he thought he should, in view of the occasion, particularly mention one. It came from Mr. Alexander Wilson, M.Inst.C.E., who at one time was the Engineer at Dawsholm. This new extension, continued the Convener, was an engineering wonder, and it was considered to be the most up-to-date plant in Scotland. He then called upon Sir David Mason, the Lord Provost of the City of Glasgow, to perform the inaugural ceremony.

Sir David Mason said he was delighted to be present at this latest enterprise of the Glasgow Gas Committee. He then emptied a truck of coal by means of the new tipper.

Thereafter ex-Bailie Paterson presented Sir David Mason with a silver cake basket as a memento of the occasion.

The guests then proceeded to the coal breaking and handling plant, where the Convener of the Gas Committee set the latter plant in operation, while the Sub-Convener (ex-Bailie James Walker) discharged the first retort.

The Luncheon.

The luncheon in the City Chambers was attended by a large company of guests, and was presided over by the Lord Provost. Accompanying the Chairman at the head of the table were Mr. George J. Jackson, Director of the Woodall-Duckham Companies, Ltd., ex-Bailie Paterson, ex-Bailie James Walker, Mr. W. M. Mason, Manager of the British Commercial Gas Association, and Mr. J. W. McLusky, Gas Engineer for the City of Glasgow.

The Chairman, proposing the toast of "The Glasgow Corporation Gas Department," said they had inaugurated that day the first instalment of new vertical retorts for the Gas Department; and the new system would provide the citizens with an ample supply of gas for lighting, heating, and cooking. Many people thought the consumption of gas was falling off, due to the increasing use of electricity; but that was not the case in Glasgow. As a matter of fact, the use of gas was continually increasing. Since the war, for example, the consumption of gas in Glasgow had grown by about 30 p.ct.

Ex-Bailie Paterson, responding to the toast, made a vigorous reply to the recent Press criticisms that had been levelled at the Gas Department. Some people, he maintained, seized on every isolated fact or statement, and jumped to hasty conclusions without knowing anything about the subject they were writing or talking about. The plant which had been inaugurated that day was the beginning of the last instalment of the reconditioning of the gas-works in Glasgow. They were now in a position to supply all the gas needed in Glasgow for some considerable time ahead. As far as they could see, their capital expenditure in connection with the Gas Department was for the time being at an end. As to a reduction in the price of gas, he did not like to prophesy, but they were doing everything in their power to bring down the price as soon as possible. Every year since the war the increase in the consumption of gas in the city was equal to the total consumption in a town as large as Paisley. The Committee were doing all in their power to bring down costs to all concerned. Alluding to the system of vertical retorts, ex-Bailie Paterson said that the first vertical retort known in Glasgow was one used by the late Mr. Foulis in 1896, when he endeavoured to effect instantaneous carbonization with powdered fuel. Experiments were carried out with retorts at Provan in 1907, and about seven years ago a contract was completed by the Woodall-Duckham Company at the Provan Gas-Works. So successful had the plant proved, that hardly a penny had been paid in repair work. The pre-war policy of the Corporation was to go ahead cautiously. The unfortunate result of this, of course, was that the plant installed during and after the war had cost double what it would have done in pre-war days. That meant extra charges for interest and depreciation, and consequently increased the price of gas. The present-day Gas Committee were being shouldered with the blame for the increased cost because of these extra interest and depreciation charges. However, in 1926 the Corporation decided to demolish certain plant at Dawsholm, and erect new equipment where necessary. A Sub-Committee was formed, a specification was prepared, and tenders were sought. After the various schemes submitted had been considered, and corresponding plants had been visited by the Committee, the contract was placed with the Woodall-Duckham Company. Proceeding, the Gas Convener said that the Glasgow Corporation were now in a position to supply enough gas for the whole of Scotland. The Gas Committee supplied gas to a quarter of the population of Scotland; and their area—covering over 100 square miles—was the largest, apart from London, in the British Isles. In conclusion, he added that last year was the first one since the war that the gas undertakings in the country had not been affected by industrial disputes.

An Engineering Triumph.

Ex-Bailie James Walker, in proposing the toast of "The Contractors," described the new plant as an engineering triumph. The Woodall-Duckham Company made and erected the new instalments of retorts at the Provan Works about seven years ago; and when these were visited and inspected by the Committee, and glowing reports were subsequently received of their working, the Committee's task of placing the present contract was simplified. The vertical retorts, he said, were proving capable of producing gas very much more cheaply and more efficiently than formerly. While of late the Gas Committee had had to face a tremendous amount of criticism, they all felt that the gas undertaking was on a sound financial basis. Last year the price of gas had been reduced from 5s. 2d. to 3s. 8d. per 1000 c.ft.

Mr. George J. Jackson, responding, said that in the erection of this new plant at Dawsholm they had endeavoured as much as possible to give work to the unemployed craftsmen in Glasgow. Their workmen had met with the greatest courtesy and help from Mr. Andrew M'Leod, Manager of the Dawsholm Gas-Works. If the contract had been carried through expeditiously by the contractors, thanks, he thought, were due in great measure to Mr. J. W. McLusky, the Gas Engineer and Manager for the city; his Engineering Assistant, Mr. J. Fred Harrison; and Mr. Andrew M'Leod. Mr. Jackson concluded by asking the Gas Convener, on behalf of the Contractors, to accept a silver salver, while the Sub-Convener was presented with a silver tea service.

Ex-Bailies Paterson and Walker suitably acknowledged the gifts.

Mr. W. M. Mason, in proposing the health of "The Chairman," said the gas industry was an old one; but this in no way implied that it was dying. The older some things got, the more their value increased. It was so with the gas industry.

Sir David Mason, replying to the toast, said he was always delighted to be of any assistance in furthering good work.

MISCELLANEOUS NEWS.

THE ROMANCE OF ARTIFICIAL LIGHTING.

From a Lecture by W. J. Liberty.

At the "Argyle Guild" at Bath on Monday, Oct. 22, Mr. W. J. Liberty gave an illustrated lecture on the above subject. The chair was taken by Mr. J. Wesley Whimster, Engineer and General Manager of the Bath Gas Light and Coke Company.

Mr. Liberty sketched the history of artificial lighting from very early days. He showed how great a part lighting has played in moulding the methods, thoughts, and religious observances of man. It was from the East, he said, that they had to look chiefly for early illustrations of artificial lighting—the fire worshippers of the Babylonian, Egyptian, and Roman mythology, and Japan, one of the oldest civilizations of the world—a veritable museum of oriental customs introduced from Korea, China, and India. Illustrations were shown of early torches used in Japan, made of slender pieces of resinous pine about a foot-and-a-half in length; of primitive Japanese lamps; of earthenware Roman and Roman-British lamps; and of the burning cresset carried by troops and watchmen (examples of which can be seen in the Tower of London and in the Chapel of the Pyx in Westminster Abbey). Other less ancient forms of torches, such as falots (vases filled with pitch or resin), early rushes and rush holders, &c., were also provided by way of illustration, and modern torches and extinguishers, torch-bearers, and the old night watchman came under review.

Early Street Lighting in the Metropolis.

Mr. Liberty entered at length into the history of street lighting in the Metropolis, and referred to the period 1414-15, when orders were issued for the "hanging out of lamps," and 1417, when Sir Henry Barton, Skinner, and Mayor, ordained that lanthorns with lights were to be hanged out in the winter evenings between Hallowtide and Candlemass. Curfew was mentioned, with allusion to how much a man should contribute to the common weal in oil or tallow for the benefit of those whose business or pleasure kept them out of their houses after sunset. So badly were the streets lighted, in fact, that no fewer than 72,000 men were hanged during the reign of King Henry VIII. for highway robbery after dark.

Introduction of Gas Lighting.

The introduction of gas lighting at the beginning of the nineteenth century was dealt with fully—from Murdoch, in 1792, to Winsor and the lighting of Pall Mall, and the foundation of the Chartered Gas Company. The lecturer mentioned the opposition to the new illuminant, the ridicule poured upon it, the alarm that had to be overcome, and the absence of engineering devices until that early eminent engineer Clegg came on the scene. Gas lighting was destined not only to alter the domestic habits, but to give a new direction to the skill and capital, of the country; to increase the output of work, and alter the industrial development and wage-earning capacity of the people. Increased wages and comfort brought about by lengthening the day had their effect on the reading capacity of the community; for people had no longer to pore over books by the aid of a spluttering rush light or a tallow dip. With better reading facilities came the desire for a more liberal education, new industries came into being, and stimulus was given to industrial and scientific research.

The lecturer spoke of the ruinous rivalry of companies supplying gas in the same area—rivalry which was composed by amalgama-

tion and "districting"—and the period of somnolence and inertia which followed lack of competition. This dead period was awakened only by the advent of cheap paraffin oil and by the birth of a new illuminant—electricity.

INVENTION OF THE INCANDESCENT MANTLE.

About this time, however, came another great invention—the wonderful discovery of Auer von Welsbach, which led to the production of the incandescent gas mantle. Use of the latter reduced the consumption of gas per candle-power enormously, and undoubtedly saved the gas industry, for it proved a serious rival to the incandescent electric lamp then being adopted. The author touched lightly on the great advance of electric light in the 'eighties. The ancient forms of light, however, appeared insignificant beside the electrical carbon lamp of 1878—the outcome of a vast amount of experimental research work by Edison and Swan—which heralded the beginning of a new age of artificial lighting.

The lecturer concluded by exhibiting a number of interesting slides of modern interior lighting, such as that of the new building of the Port of London Authority, of the new Town Hall of the St. Marylebone Borough Council, and of the Guildhall, together with illustrations of some recent examples of exterior flood-lighting.

TRADE NOTES.

Couplings and Pulleys.

The Unbreakable Pulley and Millgearing Company, Ltd., of West Gorton, Manchester, and the Cooper Roller Bearings Company, Ltd., of King's Lynn, have published a useful pocket catalogue containing transmission tables and designs and prices of couplings, pulleys, bearings, &c. It is a well-illustrated publication of over sixty pages, and convenient in size.

"Cellactite" Roofs.

Cellactite and British Uralite, Ltd., have published a new catalogue dealing with "Cellactite" for roofing purposes. This is a material made to meet modern conditions, and its primary advantages are low erection costs and no upkeep charges. The makers claim that it never corrodes, needs no painting, is permanently waterproof, and will resist tropical sun or Arctic cold indefinitely.

Gas Measurement Instruments.

The Blackman Export Company, Ltd., of Euston Road, N.W. 1, have a variety of gas and air measurement instruments to offer which are described in a recently published folder. Among these are sets for accurate measurement of gas and air speeds between 1000 and 10,000 ft. per minute, and of pressures between $\frac{1}{16}$ in. and 8 in.; and also several types of volume, static pressure, &c., indicators.

Boiler Designs.

Messrs. H. & T. Danks (Netherton), Ltd., have recently produced a folder dealing with their latest designs of boilers and steel flues, &c., which are specially suitable for gas-works requirements. Messrs. Danks are agents for the Dee Superheaters, Ltd., who also have some useful designs of superheater to offer, which may be embodied in the lay-out of new plants without any increase in the overall cost.

The Steere 3-Way Back-Run Valve.

Bulletin No. 43 of the Semet-Solvay Engineering Corporation of New York describes and illustrates the Steere 3-way back-run valve, which is designed to control the up run and down run with a great degree of safety. It is built of heavy plate steel, with every part accessible for inspection and cleaning. The operating mechanism is designed for the quickest possible travel of the discs, and for tight-cushioned seating, while water sprays keep the interior surfaces wet, to prevent the accumulation of carbon and pitch.

The "Rapper" Drill.

Messrs. William Geipel, Ltd., of Bermondsey Street, S.E. 1, have issued a leaflet dealing with their new "Rapper" tool which they are about to place on the market. This tool is a percussive rotating drill with an equivalent hammer blow at the rate of 600 to 800 per minute. It is a compact and ingenious combination of drill, hammer head, and worm, which raises and releases the hammer head and at the same time rotates the drill at uniform speed. As it is not a power drill, no auxiliary apparatus is necessary.

Hardy Compressed-Air Tools.

The Hardy Patent Pick Company, Ltd., of Sheffield, have published a catalogue, No. 277, dealing with their numerous designs of compressed air road breaking and drilling, &c., tools. The use of these petrol-driven air drills ensures a very high volumetric efficiency, owing to the fact that the inlet valve is situated in the piston itself, opens instantly on the down stroke, and remains open practically until the precise moment when the piston is reversed, admitting air both on its inside and outside peripheries.

CONTRACTS OPEN.

Retorts and Fireclay Goods.

The city of Salford invite tenders for the supply of retorts and fireclay goods. [See advert. on p. 352.]

Workshop and Offices.

The Gas Department of the Corporation of Birkenhead invite tenders for the erection of new workshops and general offices—steel-framed with brick filling or of reinforced concrete. [See advert. on p. 352.]

COAL TRADE REPORTS.

From Our Own Correspondents.

NORTH-EAST COAST.

There is not much change to report. Northumberlands are still improving, and are in a better position now than they have been for a long time. This is attributed largely to home shipment trade, which is nominally supplied by Yorkshire collieries, but which they are losing under the price increases imposed upon home trade by the selling scheme. The Durham position is perhaps slightly firmer than in the previous week, though it still leaves much to be desired. With a somewhat better supply of shipping, gas and coking coals are being better taken, but unscreened steams are still very weak on the whole.

The shortage of boats in the last month or two has caused a serious all-round rise in freights, which does not improve prospects as far as export trade is concerned. Some very heavy losses are being made by merchants who obtained business on c.i.f. quotations before the rise in freights.

Wear special gas makes are quoted at 15s. f.o.b., and best qualities 14s. 9d. Seconds and others are 13s. to 13s. 3d. Unscreened coking is 13s. to 13s. 6d., and bunkers quote 13s. 6d. for best qualities, and 12s. 9d. to 13s. for others. Northumberland steams ask 13s. 9d. to 14s. for best screened sorts, and, with no coal in second hands, the position is fair. Gas coke is steady at 20s. to 20s. 6d. f.o.b. for shipment.

YORKSHIRE AND LANCASHIRE.

Gas coals in Yorkshire and Lancashire are moving freely under contract, and forward prices show an upward tendency.

Industrial coal is inclined to retard, recent prices having been discounted.

The export market is fairly quiet. The chief demands are for hards and washed doubles, while bunker coal is also in fair request.

House coal has been in fair demand during the past week, with better grades predominating. Secondary qualities are moving only slowly.

The following are the Humber bunker and export prices, f.o.b. usual shipping ports:

South Yorkshire—Hards, Association, bunkers 20s. to 20s. 6d., export 16s. to 16s. 6d.; screened gas coal, export 15s. 6d. to 16s.; washed trebles 15s. 6d. to 16s.; washed doubles, 14s. 6d. to 15s.; washed singles, 13s. 9d. to 14s.; washed smalls, bunkers 14s. 3d. to 14s. 6d., export 10s. 6d. to 11s.; smithy peas, export 16s. 6d. to 17s. 6d. per ton.

West Yorkshire—Hartley's (f.o.b. Goole), 16s. 6d. to 17s. 6d. and 14s. to 15s.; screened gas coal, export 14s. to 15s.; washed trebles, 15s. 6d. to 16s.; washed doubles, 13s. 6d. to 14s.; washed singles, 12s. 6d. to 13s.; washed smalls, bunkers 14s. 6d. to 15s., export 10s. to 10s. 6d.; unwashed trebles, export 14s. 6d.; unwashed doubles, 11s. 6d. to 12s.; rough slack, 8s. 9d. to 9s. 3d.; coking smalls 8s. 6d. to 9s. 6d. per ton.

Derbyshire and Nottinghamshire—Top hards, bunkers 19s. 9d. to 20s., export 15s. 6d. to 16s. 6d.; cobbles, 15s. 6d. to 16s. 6d.; washed trebles, 15s. 6d. to 16s.; washed doubles, 13s. to 13s. 6d.; washed singles, bunkers 14s. 3d. to 14s. 6d., export 12s. 9d. to 13s. 3d.; washed smalls, 10s. 6d.; unwashed doubles, 11s. to 11s. 6d.; rough slack, bunkers 12s. 6d. to 13s., export 8s. to 9s. per ton.

Yorkshire, Derbyshire, and Nottinghamshire—Screened steam coal, bunkers 17s. to 18s., export 13s.; gas coke, 21s. to 22s. 6d.; furnace coke, 19s. to 19s. 6d.; washed steam (Goole, West Yorks.), 16s. to 16s. 6d., ditto (Hull, West Yorks.) 17s. 9d., ditto (Hull, South Yorks.) 17s. 9d. to 18s. and 14s. 6d. to 15s. per ton.

MIDLANDS.

The market has become more disorganized in spite of attempts to maintain a better equilibrium by restriction of output. With little increase of consumption in the industrial branches, supplies are unbalanced; spot lots of slack being disposed of for the best price obtainable. Deals have been made in 1¼ in. slack at 5s. pithead. This was about the price ruling before the war.

Some unassociated collieries which have large orders on the books for house coals cannot allow the freedom of their operations to be interfered with by accumulations of slack; and this has aggravated the difficulty arising from temporary distortions of demand.

The relapse in sales of household qualities has become more pronounced as October advanced. With the continuance of mild weather, consumption was unusually small. It is noticed in the trade, moreover, that the extended use of gas and electricity for domestic purposes is having an appreciable effect on the volume of demand for solid fuel.

Prices have weakened. Collieries mainly dependent on day-to-day orders for the disposal of their output have not been able to insist upon the full list prices announced at the beginning of October. It is stated that at one Cannock Chase colliery 700 wagons were standing on sidings waiting upon demand.

The gas coal market has been almost inanimate. Large offers of gas coke at cut prices indicate the difficulty in which works managements are placed by the backwardness of sales.

Danish Gas Company.—The Directors' report on the working of Det Danske Gaskompagni for the year ended June 30 showed a balance standing to the credit of the profit and loss account of Kr.642,987. Out of this sum the Directors recommended that a dividend of 6 p.ct. on the ordinary shares be declared, leaving Kr.302,787 to be carried forward. The quantity of gas sold during the past year amounted to 342 million c.ft.—an increase of over 22 million c.ft. on the previous year. An expenditure of Kr.72,568 for additional mains, services, meters, &c., was incurred during the year.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

London, *Oct.* 29.

There is a little more activity in pitch, and the price continues steady at 40s. to 42s. 6d. per ton. Other prices are without material change.

Creosote is about 7d. per gallon.
Pure benzole is about 1s. 8d. per gallon.
Solvent naphtha, 95/160, is about 1s. 6d. per gallon.
Pure toluole is about 1s. 11d. to 2s. per gallon.
Pyridine is about 5s. per gallon.

Tar Products in the Provinces.

Oct. 29.

The average prices of gas-works products during the week were: Gas-works tar, 31s. 6d. to 36s. 6d. Pitch—East Coast, 42s. 6d. to 45s. f.o.b. West Coast—Manchester, 37s. 6d. to 38s. 6d.; Liverpool, 39s. 6d. to 40s. 6d.; Clyde, 39s. 6d. to 40s. 6d. Toluole, naked, North, 1s. 5d. to 1s. 6d. nominal. Coal-tar crude naphtha, in bulk, North, 9d. to 10d. Solvent naphtha, naked, North, 1s. 1½d. to 1s. 2d. Heavy naphtha, North, 1s. to 1s. 0½d. Creosote, in bulk, North, liquid, 5¾d. to 6d.; salty, 5⅝d. to 5¾d.; Scotland, 5⅝d. to 5¾d. Heavy oils, in bulk, North, 8¼d. to 8½d. Carbolic acid, 60 p.ct., 1s. 11d. to 2s. prompt. Naphthalene, £13 to £15; salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

Benzole Prices.

The following are considered to be the market prices to-day:

	s. d.	s. d.	
Crude benzole . . .	0 10½	to 0 11	per gallon at works
Motor ,, . . .	1 4½	,, 1 5 ,, ,,	,,
90 p.ct. ,, . . .	1 7	,, 1 8 ,, ,,	,,
Pure ,, . . .	1 10	,, 1 11 ,, ,,	,,

Meters, Ltd., have announced to their shareholders that at a meeting of the Directors on Oct. 23 the following dividends were declared for the ensuing year: On the preference shares at the rate of 5¼ p.ct. per annum; and on the ordinary shares at the rate of 5 p.ct. per annum.

Cheaper Meter Rents at Wandsworth.—The Directors of the Wandsworth, Wimbledon, and Epsom District Gas Company have been pleased to notify their customers that the rental charge for meters supplied to ordinary consumers has been revised; and the new rate, which shows a reduction generally, will take effect from Oct. 1, 1928.

A "Thousand-and-One" Uses for Gas.—No. 176 of this interesting publication, by the British Commercial Gas Association, deals with the remodelling of an old house and its re-equipment with up-to-date gas appliances. With many photographic illustrations it is shown how an ancient and inconvenient London house was modernized into an attractive, labour-saving dwelling by the installation of gas fittings for cooking, heating, and lighting, together with a coke boiler and a geyser for the supply of hot water.

Gas Employees' Social at Sheffield.—A social and dance was held on the evening of Oct. 23 by the employees of the Sheffield Gas Company's distribution department, Shude Hill, at Stephenson's Exchange Restaurant, Sheffield. There were about 150 present, including Mr. S. T. Musgrove, the Chief Distribution Superintendent, and Mr. H. Boyd, who acted as M.C. Music was supplied by a local band, and the success of the arrangements was due largely to the efforts of Mr. J. W. Whitworth, the Hon. Secretary, who organized the event.

Presentation to Birmingham Veterans.—At a meeting of the Birmingham Gas Committee on Oct. 22, twelve of the Gas Department's employees, who were retiring under the superannuation scheme with records of service ranging from 30 to 47 years, were each presented by the Lord Mayor (Alderman A. H. James) with an illuminated testimonial as a mark of appreciation of their long service with the Department. Their names are E. T. Hawkins (47 years' service), W. Otton (46), T. Amos (46), W. H. Wincott (43), W. Whiting (42), S. B. Watts (38), G. Mathews (35), R. Pounds (34), H. Kibbler (33), H. Hawton (31), R. Holloway (31), and S. R. Goodman (30).

Nottingham Gas Undertaking.—Questions in relation to the trading concerns of the Nottingham Corporation, of which the most important is that dealing with gas supply, have naturally enjoyed a considerable amount of attention during the course of the recent municipal campaign. Mr. F. Jackson, a member of the Gas Committee, whose re-election is being opposed in one of the principal wards of the city, has been responsible for the statement that it is hoped to reduce the price of gas to the smaller consumers. Referring to the fact that last year £30,000 was again contributed from the profits in relief of the rates—this being equivalent to a rate of 5d. in the pound—he strongly defended the principle of the profits of corporation trading concerns being utilized partly for the reduction of local burdens, in which he claimed that non-consumers of gas had as much right to participate as others; their credit as ratepayers being jointly involved in relation to the capital of the undertaking. But there are others in Nottingham, who, while not disputing the reasonableness of fair business returns being secured in relation to the trading undertakings of the Corporation, have suggested that gas prices have been maintained at too high a level, in order that profits in aid of rates may be secured.

Ninety-Eight Years' Service.—A combined record of ninety-eight years' service at the Skipton Gas-Works is that of Mr. T. H. Clark and his father, who completed fifty and forty-eight years respectively in the service of the Gas Department. Mr. T. H. Clark retired on Oct. 25.

Cheaper Gas for Dover.—The Dover Gas Company have announced that, as from Jan. 1, 1929, the price of gas will be reduced from 12d. per therm to 10⅝d. per therm. There will be a corresponding reduction to prepayment meter consumers. The present price of gas in Dover is 5s. per 1000 c.ft., and next year it will be at the rate of 4s. 4d. per 1000 c.ft.

Institution of Chemical Engineers.—Application forms (returnable Dec. 15, 1928) and particulars of the Associate Membership examination for 1929, together with the Memorandum on "The Training of a Chemical Engineer," may be obtained from the Hon. Registrar, Mr. C. S. Garland, Institution of Chemical Engineers, Abbey House, Westminster, S.W. 1.

Purchase of Bedworth Gas and Coke Company.—At a meeting of the Gas Committee of the Coventry City Council on Monday, Oct. 22, it was decided to recommend the purchase of the Bedworth Gas and Coke Company's undertaking at a cost of £9000. If the recommendation is adopted by the Council, steps will be taken to obtain an Order from the Board of Trade authorizing the purchase.

Inspection of Grangetown Gas-Works, Cardiff.—The members of the South Wales District Branch of the Institution of Civil Engineers paid a visit of inspection on Saturday, Oct. 19, to the Grangetown Gas-Works, Cardiff. After the inspection, tea was served, and Mr. Cleaver, M.Inst.C.E., expressed thanks to the Cardiff Gas Company, and congratulated them, on behalf of the members, on the up-to-date plants they had seen. Mr. H. D. Madden, the Engineer and Manager of the Cardiff Gas Light and Coke Company, replied.

Street Noises Conference.—At a conference called by the Minister of Transport, Col. W. Ashley—Sir Henry Maybury, Director-General of Roads, presiding—a demonstration of motor noises was given in the courtyard at Whitehall. Representatives of public authorities, the Police, motoring associations, and others interested were present; and makers of motor horns attended to demonstrate their wares. The draft regulation that raised most discussion dealt with noisy horns. This lays down that "in streets lighted by public money it shall be an offence to use any warning horn other than a bulb horn of a certain pitch to be decided by the conference." Lord Montagu said that he thought it a mistake to suppose that only a bulb horn was capable of being soft-toned. There were many others which were not strident.

Keighley Corporation Gas Department.—In submitting his report on the working of the Keighley Corporation Gas Department for the year ended June 30, Mr. A. Bromley, the Engineer and Manager, stated that the receipts for gas showed a decrease compared with the previous year of £6563, caused by a smaller amount of gas sold, due to an abnormal demand the previous year, and by the reduction of 6d. per 1000 c.ft. which came into effect during the latter half of last year. The quantity of gas made was 515,664,000 c.ft.—a decrease of just over 10 million c.ft., though an increase of 38 millions on 1925-26. He had every reason to believe that during the present year higher results would be achieved. A total of 34,948 tons of coal was carbonized, and the make of gas per ton was 14,747 c.ft.—an increase of 529 c.ft. over the previous year. Coke had realized £14,902 less, as a result of the high prices prevailing during the coal dispute; and there was a proportionate decrease in the income from tar and ammonia. Coal had cost £35,742 less this year, and repairs about £2000 more. The gross profits amounted to £16,974; and after deducting interest and sinking fund charges amounting to £3292, there remained a balance of £12,794. In reviewing the results, Mr. Bromley said there was again every cause for satisfaction. They had sold 533 gas appliances, and let out on hire 1091 (an increase of 262). In conclusion, he expressed his appreciation to the staff for their loyal co-operation during the year.

In the "Rattler"—a publication prepared by the students of the Reading University in connection with their annual "rag" in aid of local charities—the Reading Gas Company had a whole-page advertisement, the chief item of which was a humorous poem entitled "The Charge of the Light Brigade." Needless to say, the "charge" was very light indeed.

The erection of a coal distillation plant at Trethomas for the British Benzol and Coal Distillation Company, Ltd., is proceeding. A contract for the necessary ironwork has been secured by Messrs. Guest, Keen, & Nettlefolds, Ltd. Reference to another of the British Benzol and Coal Distillation Company's plants, now in course of construction at Bedwas, appeared on p. 278 of the "Journal" for Oct. 24.

Mr. F. J. Cowie, the Vice-Chairman of the Bradford Corporation Gas Committee, and one of the most useful members because of his own position as an engineer, is the Conservative candidate in the Allerton Ward at the Bradford municipal elections. At one of his campaign meetings, on Oct. 24, he stated that a reduction in the price of gas on Jan. 1 next was practically certain, owing to the excellent progress and management of the Gas Department.

The annual gathering of the Social Club in connection with the Blackburn Corporation Gas-Works at Greenbank was held on Saturday, Oct. 27. Alderman E. Hamer, J.P., the Chairman of the Gas Committee, presided, and was supported by Councillor C. A. Critchley, the Vice-Chairman, and Mr. G. P. Mitchell, the Gas Engineer. It was mentioned that the recently inaugurated savings bank, intended to inculcate a habit of thrift among the employees, had proved very successful.

STOCK MARKET REPORT.

A FURTHER falling off in business was experienced on the Stock Exchange towards the close of last week; but while profit-taking made Industrials rather irregular, the preponderance of transactions was still in that market.

Gilt-edged investments were somewhat dull after their prolonged strength. Prices, however, were well maintained; and the 5 p.c. War Loan stood at a higher ex-interest rate than it has done for the last five years. Similar conditions existed in the Foreign Market, with the exception of the two 4½ p.c. Roumanian loans, both of which advanced considerably.

It will be seen that there was a heavier list of transactions recorded in the Gas Market, though the fluctuations were fewer than for many weeks past. Brighton and Hove 6 p.c. consolidated and Continental Union ordinary were the only stocks in which any change took place.

The following transactions were recorded during the week:

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf.Yr	Dividends. Last Hf. Yr.	NAME.	Quotations. Oct. 26.	Rise or Fall on Week.	Transactions Lowest and Highest Prices.
£			%p.a	% p.a.				
171,978	Stk.	Aug 30	5	5	Aldershot 5 p.c. max. C.	72—77	..	..
412,992	,,	,,	4	4	Do. 4 p.c. Pref.	68—71	..	..
1,551,888	,,	Sept. 27	7	7⅛	Alliance & Dublin Ord.	95—98	..	96
874,000	,,	July 12	4	4	Do. 4 p.c. Deb.	63—66	..	..
522,554	,,	Aug. 30	7	7	Barnet Ord. 7 p.c.	114—117	..	115—116
300,000	1	Oct. 11	1/7½	1/8½	Bombay, Ltd.	20/—22/-	..	21/-
170,000	10	Aug. 30	8½	8½	Bournemouth 5 p.c.	12½—13½	..	12⅝
600,050	10	,,	7	7	Do. B 7 p.c.	12½—12⅝	..	12 9/16—12⅝
375,000	10	,,	6	6	Do. Pref. 6 p.c.	10½—11⅛	..	11—11⅛
50,000	Stk.	July 12	3	3	Do. 3 p.c. Deb.	56—59	..	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb.	75—78	..	..
857,900	,,	Aug. 30	7½	7½	Brighton & Hove 6 p.c. Con.	115—118	+1	116
341,880	,,	,,	6½	6½	Do. 5 p.c. Con.	101—104	..	..
1,387,500	,,	July 26	5	5	Bristol 5 p.c. max.	90½—91½a	..	..
885,000	,,	Sept. 27	7	8	British Ord.	114—117	..	115¼—116½
100,000	,,	June 28	7	7	Do. 7 p.c. Pref.	114—117	..	..
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	74—77	..	..
200,000	,,	,,	5	5	Do. 5 p.c. Red. Deb.	95—98	..	..
100,000	10	May 24	6	8	Cape Town, Ltd.	8—9	..	..
100,000	10	Oct 25	4½	4½	Do. 4½ p.c. Pref.	6¼—7½*	..	..
150,000	Stk.	June 28	4½	4½	Do. 4½ p.c. Deb.	73—78	..	..
626,880	,,	July 26	6	6	Cardiff Con. Ord.	96—99	..	..
227,880	,,	June 28	7¼	7¼	Do. 7½ p.c. Red. Deb.	100—103	..	..
157,150	,,	Aug 16	6½	6	Chester 5 p.c. Ord.	88—93b	..	..
79,185	1	Oct. 11	1/2/-	1/2/-	Colombo Ltd. Ord.	36/—38/-	..	..
24,495	1	,,	1/4½	1/4½	Do. 7 p.c. Pref.	20/6—22/6	..	..
875,402	1	Oct. 11	1/9½	1/9½	Colonial Gas Assn. Ld. Ord	23/—25/-	..	23/1¼—23/3
187,848	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	21/—23/-	..	21/4¼—21/6
2,073,250	Stk.	July 26	7	5	Commercial Ord.	98—101	..	..
475,000	,,	June 14	8	8	Do 8 p.c. Deb.	57—60	..	..
800,000	,,	Sept. 27	11	11	Continental Union, Ltd.	36—41	+1	39—40½
200,000	,,	,,	7	7	Do. 7 p.c. Pref.	90—95	..	94
787,580	,,	Aug. 16	7	7	Croydon sliding scale	109—112	..	110—110⅝
408,100	,,	,,	5	5	Do. max. div.	84—87	..	86—86½
492,270	,,	Aug 16	10	7	Derby Con.	116—120e	..	..
55,000	,,	June 28	4	4	Do. Deb.	71—78e	..	..
209,000	,,	Aug 30	5	5	East Hull Ord. 5 p.c.	75—78	..	..
50,000	,,	June 28	5	5	Eastbourne 5 p.c. Deb.	94—97	..	..
1,002,180	10	Sept. 13	16	14	European, Ltd.	8—9	..	8½—8⅝
12,703,480	Stk.	July 26	5/1/4	5½	Gas Light & Coke 4 p.c. Ord.	19/1¼—19/7½f	..	19/14—19/6
2,600,000	,,	,,	8½	8½	Do. 8½ p.c. max.	62—64	..	63½—64
4,137,020	,,	,,	4	4	Do. 4 p.c. Con. Pref.	77—80	..	78—78⅝
5,602,620	,,	June 14	3	3	Do. 3 p.c. Con. Deb.	61—63	..	60⅝—61⅝
181,315	,,	,,	6	6	Do. 6 p.c. Br'sf'd Rd. Db.	103 -106	..	..
1,142,770	,,	,,	5	5	Do. 5 p.c. Red. Deb.	99—101	..	101⅛
42,000	,,	—	7½	7½	Do. 7½ p.c. Ilford Deb.	..	..	..
82,500	,,	Aug. 30	6⅔	7	Hastings & St L. 5 p.c. Conv	95—100	..	..
258,740	,,	,,	5⅔	5⅔	Do. 8½ p.c. Conv.	75 -80	..	..
70,000	10	Oct. 11	†10	†10	Hongkong & China, Ltd.	18—14	..	13⅞
178,200	Stk.	Aug. 30	5	5½	Hornsey Con. 8½ p.c.	85—87	..	..
1,976,000	,,	May 24	10	10	Imperial Continental Cap.	172—177	..	170½—174½
238,180	,,	Aug. 16	8½	8½	Do. 8½ p.c. Red. Deb.	67—69	..	..
335,242	,,	Aug. 16	7	7½	Lea Bridge 5 p.c. Ord.	98 -101	..	..
2,145,907	,,	Aug. 16	5½	5½	Liverpool 5 p.c. Ord.	90 -91b	..	..
600,000	,,	Sept 27	7	7	Do. 7 p.c. Red. Pref.	102¼—103½b	..	..
165,736	,,	Aug. 16	8	9	Maidstone 5 p.c. Cap.	113—117	..	115½—115⅝
63,480	,,	June 14	3	3	Do. 3 p.c. Deb.	55—58	..	..
75,000	5	June 14	†8	†8	Malta & Mediterranean	5½—6	..	..
541,920	Stk.	May 24	†5	†7	Montevideo, Ltd.	96—98	..	97—98
2,061,315	,,	Aug. 16	5	5	Newcastle & Gateshead Con.	16/—16/9d/	—/1½	..
360,929	,,	,,	4	4	Do. 4 p.c. Pref.	71½—72½d	..	..
691,705	,,	June 28	3½	3½	Do. 3½ p.c. Deb.	69½—70½	..	..
131,780	,,	Aug. 30	6/18/0	7/1/0	North Middlesex 5 p.c. Con.	96—99	..	..
900,000	,,	Apl. 26	9	7	Oriental, Ltd.	115—118	..	..
188,120	,,	June 28	7½	7½	Plym'th & Ston'house 5 p.c.	107—112	..	..
414,500	,,	Aug. 30	7½	7½	Portsm'th Con. Stk. 4p.c. Std.	101—104	..	..
336,782	,,	,,	5	5	Do. 5 p.c. max.	79—82	..	..
2,334,464	1	—	—	—	Primitiva Ord.	25/—27/-	..	25/1½—25/9
244,500	100	June 1	4	4	Do. 4 p.c. Red. Deb.	91—94	..	..
695,000	Stk.	July 26	4	4	Do. 4 p.c. Red. Deb. 1911	78—80	..	..
416,345	,,	June 28	4	4	Do. 4 p.c. Cons. Deb.	78—80	..	..
150,000	10	Sept. 27	6	6	San Paulo 6 p.c. Pref.	8⅛—8⅝	..	..
270,000	Stk.	Aug. 30	6	6½	Sheffield A	103½—104½e	..	..
419,968	,,	,,	6	6½	Do. B	103½—104½e	..	..
1,047,000	,,	,,	6	6½	Do. C	103½—104½e	..	..
90,000	10	June 14	†3	†4	South African	4—6	..	..
6,809,895	Stk.	July 26	7½	5	South Met. Ord.	107—109	..	107⅞—108½
500,000	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	119—118	..	112
1,895,445	,,	July 12	8	8	Do. 8 p.c. Deb.	59—61	..	..
784,000	,,	Sept 13	6½	6½	Do. 6½ p.c. Red. Db.	100—102	..	101
91,500	,,	Aug. 16	8½	8½	South Shields Con.	108—110d	..	..
1,343,795	,,	July 26	6½	6½	South Suburban Ord. 5 p.c.	108—111	..	110
862,837	,,	June 28	5	5	Do. 5 p.c. Deb.	98 -101	..	100
647,740	,,	Aug. 30	5	5	South'mpton Ord. 5 p.c. max	77—79	..	78
121,275	,,	June 28	4	4	Do. 4 p.c. Deb.	72—75	..	..
350,000	,,	Aug. 30	7	7	Swansea 7 p.c. Red. Pref.	101—103	..	..
300,000	,,	June 28	6½	6½	Do. 6½ p.c. Red. Deb.	101—103	..	101½—102
120,000	,,	July 26	7½	8	Tottenham District A 5 p.c.	117—122	..	..
882,276	,,	,,	6½	6½	Do. B 5½ p.c.	99—102	..	100—101½
160,000	,,	,,	5½	5½	Do. 5½ p.c. Pref.	96—99	..	..
181,265	,,	June 14	4	4	Do. 4 p.c. Deb.	76—79	..	..
289,031	,,	Aug 30	6 5/16	6⅝	Uxbridge, Maidenhead, & Wycombe 5 p.c.	90—95	..	..
88,800	,,	,,	5	5	Do. 5 p.c. pref.	87—92	..	..
80,000	,,	July 12	8½	8½	Wandsworth, Wimbledon, and Epsom— Wandsworth A 5 p.c.	130—135	..	..
256,656	,,	,,	7	7½	Do. B 5½ p.c.	112—117	..	112
424,535	,,	,,	5/19/0	6½	Do. C and New	98—103	..	98—101
353,000	,,	,,	6⅝	6⅝	Do. Wimbledon 5 p.c.	107—112	..	110½
98,000	,,	,,	7½	7½	Do. Epsom 5 p.c.	115—120	..	..
300,000	,,	,,	5	5	Do. 5 p.c. Pref	88—91	..	..
88,458	,,	June 28	3	3	Do. 3 p.c. Deb.	56—59	..	..
384,723	,,	,,	4	4	Do. 4 p.c. Deb.	75—78	..	..
207,560	,,	,,		5	Do. 5 p.c. Deb.	93—100	..	..

Quotations at:—a.—Bristol. b.—Liverpool. c.—Nottingham. d.—Newcastle. e.—Sheffield. f.—The quotation is per £1 of Stock. * Ex. div. † Paid free of income-tax. ‡ For year.

On Monday, Alliance and Dublin 96⅜, Barnet 7 p.c. 115, 115½, 116, Bournemouth "B" 12 7/16, 12⅝, Continental Union 39½, 40, 7 p.c. pref. 94, Croydon sliding-scale 110⅜, max. div. 86, Gas Light and Coke 19s. 3d., 19s. 6d., 4 p.c. pref. 78, 78¼, 78⅜, 3 p.c. deb. 61¼, 61⅜, Imperial Continental 172, 173¾, Primitiva 25s. 3d., 25s. 4½d., 25s. 7½d., South Metropolitan 107⅜, Tottenham "B" 100, Wandsworth new 98, 100½, 101. Supplementary prices, Croydon 7 p.c. deb. 104, Metropolitan (of Melbourne) 5⅛ p.c. deb. 100¼.

On Tuesday, Bournemouth 5 p.c. 12⅞, 7 p.c. max. 12 7/16, £12 10s. 6d., £12 11s. 6d., £12 11s. 9d., Brighton and Hove 6 p.c. 116, Continental Union 39¼, Croydon sliding-scale 110, 110⅜, max. div. 86, European 8¼, 8½, Gas Light and Coke 19s. 1½d., 19s. 3d., 19s. 4½d., 19s. 6d., 3½ p.c. max. 64, Imperial Continental 174, Liverpool 7 p.c. pref. 102, Maidstone 5 p.c. 115¼, 115⅜, Ottoman 6s., Primitiva 25s. 1½d., 25s. 3d., 25s. 4½d., 25s. 6d., South Metropolitan 107⅜, 108, 108¼, 6 p.c. pref. 112, South Suburban 5 p.c. 110, Wandsworth "B" 112, Wandsworth, Wimbledon 5 p.c. 110½. Supplementary prices, Bath 93, Hornsey 5 p.c. 100, 104½, Liverpool 5 p.c. 91, South Suburban new 5 p.c. 110, new 5 p.c. deb. 99⅞.

On Wednesday, Bournemouth "B" 12 7/16, £12 11s. 9d., 6 p.c. pref. 11, British 115½, 116½, Croydon max. div. 86½, European 8⅜, Gas Light and Coke 19s. 1½d., 19s. 2d., 19s. 3d., 19s. 4½d., 19s. 6d., 4 p.c. pref. 78½, 3 p.c. deb. 61, Hong Kong and China 13¾, Imperial Continental 170½, 173½, Montevideo 97½, 98, Primitiva 25s. 7½d., South Metropolitan 108¼, 6½ p.c. deb. 101, South Suburban 5 p.c. 110, Tottenham "B" 100½, 101½, Supplementary prices, Bournemouth 7 p.c. deb. 103½, Gas Light and Coke 5 p.c. deb. 101⅜, Hong Kong and China 5 p.c. deb. 86½, Liverpool 5 p.c. 91½, Metropolitan (of Melbourne) 5⅛ p.c. deb. 100¼, Oxford 5 p.c. deb. 87½, South Suburban new 5 p.c. 110, new 5 p.c. deb. 99½, 99⅞, 100, Wakefield 68.

On Thursday, Bournemouth 6 p.c. pref. 11⅛, British 115⅜, Colonial 23s. 1½d., 23s. 3d., 8 p.c. pref. 21s. 4½d., 21s. 6d., European 8⅛, Gas Light and Coke 19s. 1½d., 19s. 3d., 19s. 4½d., 3½ p.c. 63½, 64, 4 p.c. pref. 78, 3 p.c. deb. 60⅜, Imperial Continental 172, 173½, 174, 174½, Primitiva 25s. 3d., 25s. 4½d., South Metropolitan 107¼, 108¼, 6 p.c. pref. 112, South Suburban 110, 5 p.c. deb. 100, Swansea 6½ p.c. deb. 101⅛. Supplementary prices, Gas Light and Coke 5 p.c. deb. 101⅜, Oxford 5 p.c. pref. 87½, South Suburban new 5 p.c. 110, new 5 p.c. deb. 100, Southgate and District 5 p.c. deb. 94.

On Friday, Bombay 21s., Bournemouth "B" 12⅝, 6 p.c. pref. 11¼, Continental Union 39, 40⅛, Gas Light and Coke 19s. 1½d., 19s. 3d., 19s. 4½d., 3½ p.c. max. 63½, 5 p.c. deb. 101⅜, Montevideo 97, 98, Primitiva 25s. 3d., 25s. 6d., 25s. 7½d., 25s. 9d., South Metropolitan 107½, 108, Southampton 5 p.c. max. 78, Swansea 6½ p.c. deb. 102, Tottenham "B" 100½, 101½. Supplementary prices, Bournemouth 7 p.c. deb. 104, British, Norwich 3 p.c. deb. 55½, Gas Light and Coke 5 p.c. deb. 1952-57 101⅜, Metropolitan (of Melbourne) 5⅛ p.c. deb. 100½, 100⅝, South Suburban new 5 p.c. deb. 100.

The Money Market weathered another week of stringency without resorting to the Bank of England. Loan rates on Friday were normal, and, after opening at 3½ p.c., old day-to-day advances were renewed at 3 p.c. As expected, the average Treasury Bill rate was higher at £4 8s. 1·23d. p.c., being 4·88d. p.c. above the previous week's average. Discount rates were in consequence firm, but the market was quiet.

The feature of the Foreign Exchange Market was the weakness of the American exchange, which showed a fall on balance of 4.84½⅜; and the German exchange was also slightly lower at 20.35¼. French francs were in keen demand, and the Paris rate declined to 124.09, finally closing at 124.15½. Belgas closed at 34.88⅜; pesetas at 30.13; and Dutch florins at 12.09½. Italian lire were unchanged.

Silver was very quiet, but the price rose 1/16d. to 26 13/16d. per oz.; and with no Gold available, the price remained at the nominal rate of 84s. 11½d. per oz.

The Bank Rate is 4½ p.c., to which it was reduced from 5 p.c. on April 21, 1927. The Banks' deposit rate is 2½ p.c., and the deposit rates of the discount houses are 2½ p.c. at call and 2⅝ p.c. at notice.

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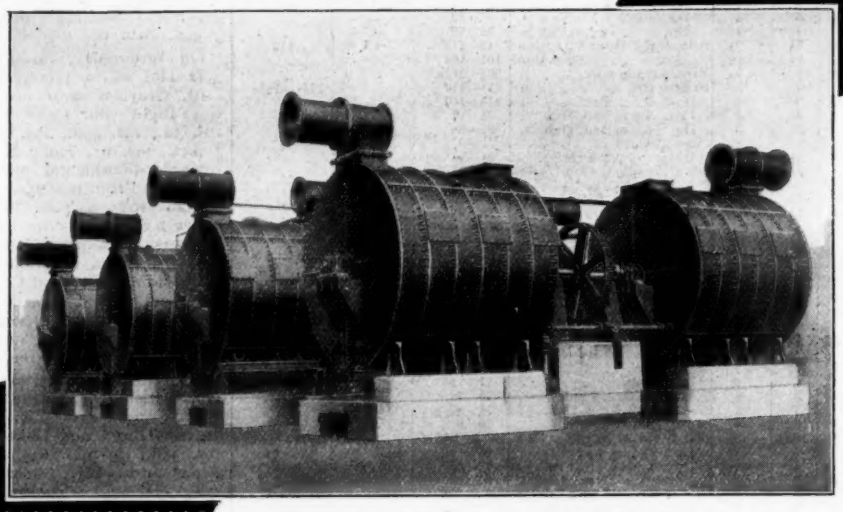

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